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© TIMES NEWSPAPERS
LIMITED 1983
Published by Times Newspapers Ltd, P.O. Box 7,
201 City Road, London EC3Y 9BE, England.
Typeset by Computer Typesetting Ltd, 37-41 Comp
St, London EC2Y 9BE, and printed by Northampton
Printers Ltd, Upper Mount, Northampton
NN1 1JH. Editor: April 29, 1983. Registered at
Newspaper at the Post Office. ISSN 1360-9575.



HIGHER EDUCATION SUPPLEMENT
Priory House, St John's Lane, London EC1M 4BX. Telephone 01-253 3000

There's a silver lining

For more than five years higher education has been chilled by a dark demographic cloud. The gloomy presumption has been that demand for places in universities, polytechnics and colleges had declined during the 1970s and that because of the decline in the size of the appropriate age groups the actual number of students was likely to fall in the later 1980s and 1990s. These stark and, apparently, uncontested facts seemed to sum up the public verdict on higher education. They seemed to justify, and so intensify, the post-Robbins post-Crosland hangover. Even the present cuts came almost to be seen as the inevitable outcome of some deadly general will, the rain that must inevitably fall from dark clouds.

The result has been the growth of a misanthropic mentality within higher education. An unnecessary even obsessive introspection and a desperate desire to degrade obvious success and exaggerate doubtful failure have established themselves as the favorite outlook of many in universities and polytechnics. "Stibborism" (Robbins in reverse) may be too ungainly a word to be admitted even to higher education, but it sums up an attitude which has depressingly wide covert support and infects even the most optimistic and level-headed.

How different it would all have been if student demand had remained as buoyant in the 1970s as it had been in the 1960s, and if the prospects for future demand were not so depressing. Then higher education could have continued to look to the future, confident that the broad pattern of the Robbins expansion of the universities and Anthony Crosland's binary adjustment that created the polytechnics had been vindicated by experience. The cuts could then have been regarded as a pragmatic setback, difficulties to be sensibly managed and hostility to be effectively fought, rather than as an occasion for negative and destructive soul searching.

In fact there is now an accumulation

of evidence that this wish may after all come true. Past age participation rates are being recalculated; projections of future student demand are being revised. The picture that is beginning to emerge is a much more hopeful one. The foundations on which higher education's present depression has been built are crumbling away. Shortly before Christmas the Department of Education and Science produced new figures that led to a total revision of the accepted pattern of student demand in the 1970s. Instead of reaching a peak in 1972 and then falling away, it continued to rise throughout the decade and is now higher than ever before.

A similarly discreet revision of projections of student demand in the 1980s and 1990s is now taking place. While no sensible person denies that the decline in the number of 18-year-olds will have some effect on demand, there is now much less talk of large numbers of empty places and of the consequent danger of collapsing institutions. Instead more emphasis is being placed on the rather loose, and getting looser, connexion between the size of adolescent age groups and demand for higher education. Even if we accept the claim in this week's DES report on future student numbers that "sooner or later" the supply of places will exceed demand, the emphasis is slowly drifting from the "sooner" to the "later".

This revision of higher education's record in the 1970s and prospects for the 1980s has far-reaching consequences. First, it is likely to lead to a similar revision, and revival, in higher education's morale. Statistics, however inaccurate, and analyses of statistics, however misleading, can have a decisive influence on the moulding of morale. Warnings about a collapse in future demand are believed even by those who are quite literally being overwhelmed by an excess of students, just as the oppression of cuts is felt keenly even in institutions that have suffered no effective cuts. Perhaps, as the revised picture acquires clarity and

Bashing social science

The present Government's prejudice against the social sciences has never been disguised. Sir Keith Joseph's attempt to abolish the Social Science Research Council may have been triumphantly aborted by Lord Rothschild, but nothing has stood in the way of his fierce discrimination against social science in the distribution of the science budget. Not content with rejecting the considered judgment of the Advisory Board for the Research Councils, Sir Keith has effectively used the cuts in the SSRC's budget to pay for the "new blood" posts in universities.

However, more recently this attack on social science has entered a new and more dangerous phase. Any Government is of course entitled to distribute public resources to reflect its own priorities and prejudices. So it is legitimate, if not reasonable, for Sir Keith to invert the advice of the ABRC. But no Government or its fellow travellers have the right to try to influence or

circumstances it too must order on inquiry. Yet this latter incident must revive old and difficult memories at PNL and cause quite unnecessary and unfair damage to the contemporary institution.

This heavyhandedness now seems to have spread to Scotland. The Scottish Education Department's decision to end Paisley's Social Science degree appears quite arbitrary and without public justification. Perhaps this latest incident is the most worrying of all because Paisley is a direct grant institution and so without the defences of Warwick or PNL. There is a strong case for extending direct grant status to British higher education on social and economic grounds, but that case is completely undermined if they Government can offer no guarantee that a more direct relationship between certain parts of higher education and the state will not lead to quite arbitrary and ignorant attacks on academic freedom.

Sir Keith does not seem to understand, or respect, this distinction. As a result he has stumbled more than once into an intellectual totalitarianism that is quite out of personal character. First, his failed coup against the SSRC threw up the allegations of pro-trade union bias against the industrial relations unit at Warwick, which the SSRC had to take seriously to clear the unit's name. More recently and alarmingly Sir Keith himself has lent his support to a private critic of the Polytechnic of North London's sociology department and the Council for National Academic Awards has decided that in all the

A test of good faith

All sides involved in the unnecessarily long and complex saga of determining just who is (and who is not) an overseas student must have hoped that the introduction of legislation on fees would be the end of the matter. But, although circumstances have forced the Department of Education and Science into the action advocated by student bodies and even an all-party committee of MPs for years, some awkward questions still remain.

The lengthy period of inaction as successive test cases trundled through the courts is now water under the bridge. But the DES should not try to avoid or ignore the consequences of its

previous lack of policy. It would be invidious, for example, to expect local authorities to pick up even part of the bill having ignored their repeated requests for a more timely intervention.

As far as it goes, Sir Keith Joseph's Bill is welcome since it provides a firm basis for local authorities and universities to plan student numbers for 1983-4, always assuming that the Stonework Instrument which must follow is sufficiently watertight to clarify matters once and for all.

However, Sir Keith is on more dubious ground when it comes to compensation for those the Lords held to have been wrongly assessed as foreign students in past. Strict legal interpretation may hold that the students accepted a contract when they paid the higher fees, but natural justice suggests otherwise. After all, they had little choice.

The Lords' judgment quite naturally raised the hopes of many students who believed that persistence in the courts had literally paid off. For a Government which has shown itself willing to make some amends for previous errors in its handling of foreign students to be seen trying to wriggle out of its responsibilities would be disappointing.

Laurie Taylor



(New efforts by universities to establish contact with former graduates - THES (April 15.)

The Provost's Lodge
April, 1983

Dear Mike,
Well, my word we've been having some pretty bad weather for this time of year, haven't we? I know that our head gardener, "Old Blotson" Craddock (remember him by the way? What a character!), was only telling me the other day that he's not seen an April like this for "many a long year".

But down to business. The real reason I'm writing, Mike, is to invite you (and of course your lady wife, if there is such a lucky person) to the next meeting of our newly formed Alumni Society.

This year's function will take the form of a Grand Reunion Dinner to be held in the partitioned section of the Bertrand Russell College Dining Hall (if you remember that's the section where the final examinations were held). Inclusive price for the dinner and the rest of the evening's entertainment is a very reasonable £47.50. The college chef (yes, old "Scraps" Wright himself. Still going strong) has selected the following menu:

One Half of Hot Grapefruit

Choice of: Blackcurrant Sauce
Haddock Bonne Femme
(\$5 extra)
Tandoori Hake
stuffed with Macello
Cherries (\$2 rebate)

Choice of: Sprouts Nicoise
Sweetcorn Marmay
Game Chips

Fresh Gooseberries with Kirsch

The price also includes two (2) glasses of our specially bottled "Campus Wine". (Many people who've tasted this since it was introduced just two months ago have commented favourably upon its distinctive label.) I am delighted to tell you that far our after-dinner speaker we have been lucky enough to secure the services of one of our more illustrious old boys - Geoffrey Lackpace, MP - who will give a fairly lengthy but relatively disorganised talk entitled "Nooks and Crannies in the House of Commons Library". After dinner we will adjourn for drinks in the Henry Moore Extension Building.

The entertainment for the evening will conclude with a specially devised "The Son et Lumiere" presentation of "The 1969 Occupation of the Administrative Block" which features the recorded voices of the Deputy Registrar, three former student militants, and Detective Inspector Grantley.

Throughout the evening the Bursar and the Deputy Bursar will move discreetly among the guests selling raffle tickets and photographic views of the Albert Schweitzer Concert Hall in aid of the fund to provide serving academics with additional money for travel to overseas conferences.

All the very best from your old friend,

W. R. LEVINGTON.
Provost.
(or - to use the nickname which I understand was much favoured by your year) "GOEBBELS".

The Times Higher Education Supplement

May 6, 1983 No 548 Price 50p

Business enterprise angers City

by Ngaio Crequer

The dean of City University's business school has angered university senators by holding private talks with Sir Keith Joseph, Secretary of State for Education, about the school going independent.

Vice-chancellor Dr Raoul Franklin and the senate were told about a conversation between Professor Brian Griffiths, his son dean Professor Hugh Murray and Sir Keith only after it took place. They raised the question of increasing the autonomy of the school.

"It is an open secret at City that the business school feels restrained by the university," said a confidential commercial proposition put to Sir Keith. This concerned attracting funds from sources other than the University Grants Committee, probably from abroad, for running courses, and for which the business school needed Government help. The discussion then centred on the relationship between the school and the university.

The Department of Education and Science this week confirmed the approach to Sir Keith and said that further discussions would be held with Professor Griffiths and "others concerned".

Senate found out about the talks two weeks after they took place when the vice chancellor was asked at a senate meeting about the status of the discussions, which were then rumoured. He confirmed that he had known nothing about it until after it had taken place, and even now he had little more information to add.

Senators were furious. Professor Philip M'Pherson, a pro vice chancellor, said he was appalled. Professor R. T. Bottle, director of the Centre for Information Science, asked "Did he do it on the sly?"

For most of the senators this was the first time they had heard of the talks. The senate was concerned that the approach had been made without the vice chancellor's authority, yet with the implication that they were university proposals, and also about the content of the discussions.

The university would view any attempt at independence by the business school with alarm. It is an important pillar of the university particularly in view of its connections with the City of London. The business school accounts for a significant proportion of the university's students and budget. Without it the business school accounts for a significant proportion

university would be small, at around 2,000 students, and vulnerable.

There has been tension for some time. Last year the responsibility for teaching management to engineers was transferred from the business school to Professor M'Pherson. Yesterday the students' union was due to discuss a motion condemning the professors' visit to Sir Keith and asking the vice chancellor to call on them to resign.

Professor Griffiths was formerly director of the university's centre for banking and international finance. He has been dean of the business school for two years. He is a well known monetarist, a former Conservative Parliamentary candidate and a member of the Bow Group. He helped to draw up the economic strategy behind the 1979 Conservative election manifesto.

He refused to speak to *The Times* this week. Dr Adrian Seville, the academic registrar, said he had spoken to Professor Griffiths, who had said there was no intention of applying for a Buckingham-style charter because of the problem of awarding degrees. The discussion with Sir Keith had concerned the financial autonomy and responsibility of the school to the university, rather than secession.

Tories warn AUT over election campaigning

by Olga Wojtas
Scottish Correspondent

A Conservative lawyer has warned the Association of University Teachers that their proposed campaign during the General Election could be illegal.

The AUT, possibly allied with other educational and campus unions, intends to mount a campaign in a number of marginal seats highlighting the effects of four years of education cuts.

The association has still to decide which seats will be involved in England and Wales, but has already selected four Scottish marginals, including Edinburgh Central which, following boundary changes, will be contested by Mr Alex Fletcher, Scottish Office minister for industry and education.

Mr David McLetchie, a solicitor and chairman of the Edinburgh Central Conservative Association, said the campaign bordered on the illegal under the 1949 Representation of the People Act.

"If the AUT has a nationwide campaign saying it disapproves of the Government record on education that

is fair enough, but when it picks on particular seats then it is intervening in an election," said Mr McLetchie.

If the AUT weakened the chances of one candidate, it would be promoting the interests of all the others. This would be breaking the law, since the only expenses which could be incurred to promote a candidate were by the candidate, and election agents or people authorized by the agent.

Mr McLetchie cited a recent House of Lords case in which a group called the Manchester Anti-Fascist Committee was fined for urging people not to vote for the National Front candidate.

But Mr Steve Ruhemann, president of the AUT, said there was no question of the association opposing or supporting specific candidates. "As is well known, the AUT is not affiliated to any political party and has members in most of them."

Local AUT branches would be asked to invite local candidates to campus meetings, to organize meetings with national speakers from the political parties, and to distribute leaflets and write letters to the Press.

In certain seats, where the AUT felt the education vote was "particularly important", the campaign would be given national backing, he said.

Apart from Edinburgh Central, at present a Labour seat held by Mr Robin Cook, the AUT is also to campaign in Glasgow Hillhead, held by Mr Roy Jenkins, leader of the SDP, and also affected by boundary changes. Dundee East, held by Mr Gordon Wilson, chairman of the Scottish National Party, and Aberdeen South, currently a Tory seat, but likely to become a Labour marginal.

"We don't want to suppress the AUT or prevent them discussing the issues of higher education," said Mr McLetchie.



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A disabled student in the lounge at Kulukundis House

Student shortage at pioneer residence

A pioneering purpose-built residence for disabled students may lie empty next year because its host university cannot find the students to fill it.

Kulukundis House, on the University of Sussex campus at Falmer, was built ten years ago, and was said to be the first residence to cater exclusively for disabled students.

Next year however, none of the four places available there will be taken up. Mr Ted Nahkely, the university assis-

Binary pay gap narrows

by John O'Leary
and David Jobbins

Pay differentials between university and public sector lecturers were set to narrow this week as Sir Keith Joseph, Secretary of State for Education, received proposals for a 4.6 per cent settlement with additional benefits for the lower paid in the universities.

Negotiations on a package for polytechnic and college lecturers continue today with the possibility of a settlement close to 5 per cent. The National Association of Teachers in Further and Higher Education's claim for structural changes has proved the sticking point so far.

Agreement in Committee A of the universities' salaries machinery followed the concession of an additional 0.1 per cent on the overall offer. Those at the bottom of current scales will also receive an extra 275 and the age point will be raised from 26 to 27.

Both the Association of University Teachers and the vice chancellors hope that their agreement will be ratified without a formal meeting of Committee B. The settlement was presented to Sir Keith by Sir Alexander Johnston, the independent chairman of Committee A, and was not expected to encounter opposition despite the breaching of the cash limit of 3.5 per cent for university salaries.

With negotiations still in progress for university clerical staff and settlements in the National Health Service likely to force up the rate for clinical staff, the vice chancellors are certain to face salary bills well in excess of their targets. In the absence of further Government assistance, they will have to seek economies elsewhere.

The new rates will put the minimum lecturer's salary over £7,100, compared with the present £6,375, with a minimum of £8,085 at 27, rather than £7,225 at 26. The professional average will top £20,000, an increase of almost £1,000 on the current figure.

The Association of Polytechnic Teachers sees the 4.6 per cent university deal as reinforcement of the case for an across-the-board percentage increase for college lecturers.

Natfhe and the other unions are claiming 12 per cent and £280 and no formal offer has been made because they are also refusing to drop demands for a number of changes to the salary structure. Little progress has been made in the three sessions of negotiations as the employers have not been prepared to make substantial concessions on issues such as the lecturer 1 lecturer 2 merger as part of the salary settlement.

They insist the structural questions should be dealt with as part of their overall review of structure later in the year. The employers are also opposing a flat rate element arguing it would upset existing differentials and make the FE system uncompetitive with rival training operations.

Employers would have a statutory obligation to provide systematic quality education and training for their employees at work or in college. They would have to release them to colleges but would receive youth employment training premiums.

A Labour government would not immediately seek to replace existing machinery to unify education and training. Instead it would coordinate the different groups ensuring the full participation of the relevant Government departments.

continued on page 3

DES estimates too low, says Burnett



Burnett: "more women seeking places"

by Olga Wojtas
Scottish Correspondent

Figures from the Department of Education and Science which predict increased student demand in 1990 are still underestimates, according to the principal of Edinburgh University.

Dr John Burnett said the new projections took into account the fact that the middle-class birth rate had not fallen as sharply as in other social classes. But they still did not take into account the steady increase in the number of women seeking entry to higher education.

"The number of women actually entering higher education has increased throughout the 1970s, and there is no reason to suppose it won't go on increasing," he said.

He added that the DES document also did not consider part-time student numbers.

"There is government pressure and desire to see universities increase the number of part-time, refresher and mature student courses and if that is to

be achieved it will have to be acknowledged by increasing student numbers," said Dr Burnett. It was possible that more people would also seek entry into higher education because of high levels of unemployment.

Scotland would be harder hit than south of the border, the principal warned. Although the DES figures were for the whole of Britain, they still ignored the fact that the fall in the Scottish birth rate was two per cent less than in England and Wales.

More than 3,000 of Scotland's 40,000 university places had been lost because of the University Grants Committee's cuts, but Dr Burnett predicted that another 1,000 qualified school-leavers could be denied university places in the next few years.

Most of the Scottish university principal also said that they would be willing to exceed student intake targets to accommodate the "bulge" in the birth rate, said Mr Burnett. But it was now clear that targets would have to be exceeded for the whole decade if

qualified entrants were to win places. When education cuts began under Mr Margaret Thatcher, the then Secretary of State for Education, his argument was that the fall in the potential number of full-time students in the 1980s would parallel the birth rate, said Dr Burnett.

The number of 18-year-olds would fall by about 50,000 from 896,000 in 1980/81 to 848,000 in 1989/90. But the new figures projecting student numbers, even ignoring groups such as women and mature students who would be qualified and demanding access, showed an increase from 520,000 in 1980/81 to a figure between 533,000 and 562,000 in 1989/90, Dr Burnett added.

"The Government did not make a mistake initially; its statistics were simply inadequate," he said. "But the political question is, in the light of their own revised estimates, is the Government prepared to change its policy and consider more resources for education?"

Student numbers game, page 9.

Extra sensory allocation

by Jon Turney
Science Correspondent

Government spending on remote sensing technology over the next five years has been increased from £30m to £45m. Mr Kenneth Baker, the minister for information technology announced the extra funding when he named the chairman of the new National Remote Sensing Programme Board this week.

The Board, chaired by Mr Geoffrey Pardo of General Technology Systems Ltd, will bring together Government departments, industry and two of the research councils to develop the mapping and monitoring of the globe from satellites.

Its main function will be to promote British expertise in processing satellite data to cater for a world market estimated at £250m in 1990. But universities and colleges, currently the largest single group of users of the National Remote Sensing Centre at the Royal Aircraft Establishment at Farnborough, will also benefit from the expansion of the field.

Initially, the board will supervise development of the national centre, and coordinate British facilities for processing data from the European Space Agency's remote sensing satellite, ERS-1, due for launch in 1983. The new satellite will send back images which can be used for weather forecasting and assessments of sea conditions. And it will furnish data for researchers in oceanography, glaciology and climatology.

Professor John Houghton of the Science and Engineering Research Council's Rutherford-Appleton laboratory said that the two research councils involved - the SERC and the Natural Environment Research Council - would provide the board's links with the universities.

The scientific base provided by the research councils and universities would have to be exploited to get the full benefits of the new technologies, he said. And academics would be involved in both testing of new techniques for interpreting the vast amounts of raw data sent back from orbit and in developing new scientific applications of the data.

Professor Houghton said the research councils were considering setting up a network linking users of remote-sensing data in universities so that they could exchange computer programmes and transfer data between widely scattered laboratories. This would be similar to the existing Starnet system for linking university astronomers.

Mr Tony Jefferson, lecturer in criminology at Sheffield University, criticised the lack of interest in postgraduate education. He argued that it was a crucial part of higher education's research infrastructure.

Mr Roy Price, chief education officer for Dorset said: "There were no reasons given for the suspension. Those will be discussed at the meeting. It is not a political matter; Mr Tudgay knows what it is about."

Sex balance 'should be redressed'

One of the main losses in higher education over the last 10 years has been the demise of women's colleges, Dr Janet Finch, lecturer in social administration at Lancaster University, claimed at a conference on socialist alternatives for post-school education last weekend.

She said this had to be reversed by reintroducing a single-sex dimension into higher education. This might be achieved by introducing women-only courses in mixed institutions instead of reestablishing single-sex colleges.

Dr Finch also argued that the pattern of courses and student finance would need to be reformed if women were to be given a better deal. The "straight-through" model might suit the pattern of men's lives but it did not suit women's lives. Modular courses and continuing education were more important for them. Nor were devices like paid educational leave much good to women who did not have jobs.

Earlier Professor Royden Harrison, director of the Centre for the Study of Social History at Warwick University, attacked the growing emphasis on applied and mission-oriented research. It was not only an invasion of academic freedom but also inefficient because scholars and scientists themselves had understood the most promising lines of research.

Mr Tony Jefferson, lecturer in criminology at Sheffield University, criticised the lack of interest in postgraduate education. He argued that it was a crucial part of higher education's research infrastructure.

Survival campaign

The National Union of Teachers will launch a campaign and a manifesto next week to defend the education service and promote education as the key to national survival.



Norman Tudgay - "It is grossly unfair to hold me responsible"

Scapegoat claim as art college principal is suspended

The head of an art college has been suspended after 14 years without being given a reason and banned from the college premises.

Mr Norman Tudgay, principal of the Bournemouth and Poole Art College, was called before Dorset County Council's chief education officer this week and told that he could not return to the college.

"There were no specific charges laid against him, but Mr Tudgay thinks he has been made a scapegoat by governors because the college failed to get validation for a higher diploma in fashion."

"I know that is part of the reason," said Mr Tudgay. "But it is grossly unfair to hold me 100 per cent responsible. I feel I have been made a scapegoat. For some reason the governors want me out."

Mr Tudgay added that he felt very bitter about the method of his suspension. "It was given no written reasons," he said.

"The humblest of workers is meant to get three written warnings before suspension, yet I have made my art college into one of the finest in the country and they turn round and do this to me."

"I am not even allowed to go to the college, as if I had done something really naughty."

"All the education officer would tell me is that there was a lack of confidence in me by the governors. Everyone is horrified; the phone has not stopped ringing, with people asking why they could do this to me. 'I only wish I knew'."

The college governors declined to comment, saying that an emergency meeting is to be held on May 19 to hear the reasons for Mr Tudgay's suspension.

Mr Roy Price, chief education officer for Dorset said: "There were no reasons given for the suspension. Those will be discussed at the meeting. It is not a political matter; Mr Tudgay knows what it is about."

Economists brought to book

by Paul Flather

A group of leading academic economists who claim to have "kept the flag of reason flying" between the extremes of Keynesianism and monetarism celebrated the first five years of their membership over lunch in London this week.

The meeting marked the publication of a collection of 13 papers on contemporary economic problems written by members of the CLARE group between 1977 and 1982, complete with statistical appendix and suggested further reading.

The group was founded in 1976 about the time the International Monetary Fund visited London to put the brakes on the Labour government. It set out to chart a middle way between the extremes of economic policy.

Its first meeting was held in Clare College, Cambridge, but its name is in fact an acronym derived from the now defunct London and Cambridge Economic Service, comprising Cambridge, London, and the Rest of England.

Members of the group come from Oxford, York, Birmingham, Kent, Warwick and Nottingham Universities as well as Cambridge and London, and include Sir Alec Cairncross, A. R. Pratt of the London School of Economics and Michael Pinner, chairman of the Social Science Research Council.

The group's view, described by one member as a sort of "middle way" between Keynesianism and monetarism, is essentially Keynesian, in favour of reflation, but not too rapid a rate, accompanied by various devices to keep inflation at bay with special attention on competitiveness.

One of its papers *Can Mr Thatcher Do It?* by Professors Robin Matthews, master of Clare College, and W. B. Reddaway, emeritus professor of political economy at Cambridge, caused a stir when it appeared in 1980.

The answer then was that the "possibility of failure" loomed large. Professor Matthews, who conveys the group, was as cautious as ever at the lunch. "It's still not possible to say definitely. But the basis for sustained growth, in my view, is not really there."

He said the group's articles were studied carefully by ministers, the Treasury, and the Bank of England. "I think it's fair to say we have kept the flag of reason flying among economists. I don't know how much more we have done."

Mr Peter O'Sullivan, fellow of Christ Church, Cambridge, and CLARE member, said the group had performed an important function in steering between the extremes of monetarism and Keynesianism. Professor Patrick Minford of Liverpool University, an economist while at the Ministry of Finance, said the group's work was "crucial" in the current climate of Keynesianism at Cambridge.

*Essays from the CLARE Group, edited by R. C. O. Matthews and J. R. Sargent, Methuen £3.95p.

Brunel closure fires student union anger

by Felicity Jones

The students' union at Brunel University has written to urge the Commons Select Committee to hold an inquiry into the management of the university.

This follows a decision by Professor Richard Bishop, vice chancellor of the university, to withdraw conditional offers to students for the building (engineering and management) undergraduate degree course. Letters were sent to the 25 students from the academic secretary stating that it had been decided that courses in building can no longer be sustained at Brunel.

The Board, chaired by Mr Geoffrey Pardo of General Technology Systems Ltd, will bring together Government departments, industry and two of the research councils to develop the mapping and monitoring of the globe from satellites.

Its main function will be to promote British expertise in processing satellite data to cater for a world market estimated at £250m in 1990. But universities and colleges, currently the largest single group of users of the National Remote Sensing Centre at the Royal Aircraft Establishment at Farnborough, will also benefit from the expansion of the field.

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Professor Houghton said the research councils were considering setting up a network linking users of remote-sensing data in universities so that they could exchange computer programmes and transfer data between widely scattered laboratories. This would be similar to the existing Starnet system for linking university astronomers.

Mr Tony Jefferson, lecturer in criminology at Sheffield University, criticised the lack of interest in postgraduate education. He argued that it was a crucial part of higher education's research infrastructure.

Mr Roy Price, chief education officer for Dorset said: "There were no reasons given for the suspension. Those will be discussed at the meeting. It is not a political matter; Mr Tudgay knows what it is about."

Survival campaign

The National Union of Teachers will launch a campaign and a manifesto next week to defend the education service and promote education as the key to national survival.

'Final Solution' challenge taken up

by Paul Flather

In the midst of the Hitler diaries controversy, a Surrey University academic has taken up the challenge of historian David Irving to show that the Nazi leader really did know all about the Final Solution to wipe out the Jews.

Mr Irving first issued his \$1,000 challenge in 1977 when his book *Hitler's War* was published. The challenge has been recently reactivated in *The Bookseller* by MacMillan who are publishing a new two-volume soft-back edition of the book in July.

Mr Irving, widely criticised for his "revisionist" interpretation, claimed in his book that Hitler himself remained ignorant of the systematic extermination of the Jews and challenged anyone to produce documentary evidence to refute any statement in his book.

Now Dr Gerald Fleming, a reader in history at Surrey, has picked up the gauntlet. His evidence is contained in his book called *Hitler and the Final Solution*, so far only published in

German by Limes, Munich, but to be published in English by the University of California Press this year.

Dr Fleming said he was very surprised that Mr Irving continued to issue his challenge in spite of evidence in his book. Above all, he wanted the argument conducted on a scholarly basis. "I must defend historical truth because that is my job," he said.

In his book, Dr Fleming has traced in great detail every document relating to the so-called Final Solution by personal interrogation and by affidavit. He had long been concerned that historians had not done enough work on the way Hitler camouflaged his "Führer orders".

His book has been critically praised by many historians, including Lord Dacre, the historian Professor Hugh Trevor-Roper in *The Times Literary Supplement* in January. Lord Dacre has been at the centre of the row over the authenticity of the Hitler diaries.

As his proof, Dr Fleming first cites

the transfer papers of SS Sturmabführer Christian Wirth, a chief officer in three liquidation camps, signed "at the disposal of the Führer". In 1943 while he was in charge of the Sobibor liquidation camp where 34,294 Dutch Jews were gassed, his promotion form says he was "active in a special mission for the Führer".

Among other evidence he cites evidence proving Hitler was kept informed of mass shootings by his killer squads, including a sheet sent on August 1, 1943 by his Gestapo chief Heinrich Müller. He also cites "orders" received by Himmler, entrusted by Hitler to carry out the Final Solution. Himmler received orders only from Hitler.

Dr Fleming said all the documents were well-authenticated wartime records. He said any money would be paid to the International Red Cross. A spokesman for Mr Irving said this week he would await any evidence found with interest.



First lady: Journalist Katharine Whitehorn has become the first woman rector of St Andrews University in its 600-year history. She is flanked by rector's assessor Mr Paul Chennell (left) and Mr Harry Robinson, acting president of the students' representative council and is holding one of the gifts she received while being "dragged" round the town in a coach drawn by university athletics blues.

DES reviews adult policy

A wide-ranging review of adult and continuing education spending and policy is under way inside the Department of Education and Science.

All the department's direct responsibilities - including university extra-mural departments, adult residential colleges, professional updating and the Workers' Educational Association - are to be subject to "fundamental questions" about their place in what senior civil servants in the DES consider "an important area, ripe for change".

The review is unlikely to reach the stage of presenting policy options to ministers until the end of the year, about the same time as the University Grants' Committee and National

Advisory Body continuing education working parties are due to report.

The review's emphasis is on the long-term future, between five and ten years, asking what the objectives of continuing education are, what individual and economic needs are likely to be and whether current arrangements will meet them.

To those who argue that the Advisory Council for Adult and Continuing Education has done precisely that in its reports of the last five years, the reply is that those reports are the launching point for the review, but that the department may find ways of achieving similar ends by rather less expensive means than those recommended by ACACE.

£350m computer research boost 'may overtax academics'

by Jon Turney
Science Correspondent

University computer researchers this week welcomed the Government go-ahead for a £350m programme for advanced information technology. But relief that the money had finally been approved was tempered by fears that demands on the small band of academics working in artificial intelligence may be too high.

A committee chaired by Mr John Avey of British Telecom last year recommended a major research programme for advanced computers designed to bring together industry, government, research councils and universities. It was to keep pace with the Japanese government's efforts to develop a "fourth generation" computer by the 1990s.

The Science and Engineering Research Council and the Department of Education and Science have been allocating funds with this in mind for

some months, but only now has the Department of Industry promised the major part of the money.

The full five-year programme, announced in Parliament by Mr Peter Jenkins, the Secretary of State for Industry, will provide £300m for industrial research, with 50 per cent government funding. A further £50m for academic groups will come from the DES.

The work will be in the four areas outlined by the Alvey committee. These are intelligent knowledge based systems, similar to the fashionable "expert systems" which can help make narrow technical decisions; very large scale integration - making larger and more complex chips for computer circuits; man-machine interfaces - making computers easier to communicate with; and software engineering - new techniques for writing computer programmes.

A five-member directorate in the

DoI, headed by Mr Brian Oakley, now secretary of the SERC, will oversee the programme. The Ministry of Defence will also have a say in the research decisions.

The DoI go-ahead, after an eight-month wait since the Alvey committee report was published, marks a critical intelligence research's final return to favour after years in the doldrums. This followed an SERC report by Sir James Lightill in the early 1970s, which was sceptical about prospects.

The academic community is still rather small because of the relative lack of funds available since then and it now bears a heavy responsibility.

The number of academic researchers on expert systems is between 40 and 50, compared with the 250 scientists in the Japanese effort. Dr John Lumley, of Cambridge Consultants Ltd, said that some of the collaborations proposed in the Alvey report would overwhelm the academics.

The time the programme takes to get going will be crucial. The Alvey committee recognized that the research community needed to recruit more people, and this had already begun.

But industry is already seeking new links with academic departments known for their work in the field, especially in expert systems.

ICL, Britain's largest computer company, recently called a meeting of artificial intelligence researchers, announced that "research is not our business" and called on university departments to come to the firm for funds.

Professor Bob Kowalski, of Imperial College, London said: "Most of us now have most of what we wanted or needed." His department recently concluded an agreement with ICL.

He added that the Alvey programme would provide coordination but while this was needed not everyone wanted it.

The biters bitten at Brasenose

Dons at Brasenose College have special reason to be vigilant during tutorials this term. They will have spent the Easter vacation absorbing some of the comments undergraduates have passed on their work.

The Oxford College has introduced annual end-of-term reports by students on their tutors as a way of improving teaching practice and communication, as well as a mark of fairness. Students of course receive three reports a year.

Special forms are left in the college lodge, and students fill in the name of their tutor but keep their own identity anonymous. Questions cover items such as reading lists, the supply of library books, coverage of the subject, the number of tutorials, even the audibility of the tutors. The forms are passed to the principal who is free to raise any issue with a don.

Mr Vernon Bagdanor, the senior tutor, said the reports had proved very valuable, and were now a permanent feature. They were first tried last year.

He said: "One comment I received for example, was that 'undergraduate' like to be told far more often how well they are doing. They may be doing fine but they like to know. The reports are really taken very seriously. Some even type long careful comments."

Students are also pleased with the experiment. Mr Peter Sands, president of the Junior Common Room said: "I don't think anyone is missing a trick. It's too obvious. I asked my tutors to give more precise reading lists. Sometimes they are too vague."

Labour hones cutting edge

continued from front page

ment departments, the Manpower Services Commission, local authorities, trade unions, employers, teachers and the careers and youth services.

At local level this would mean placing a statutory duty on local authorities to provide education and training for student trainees.

But it would seek to immediately improve the Youth Training Scheme through the trade unions by recruiting trainees into union membership at work and in colleges into the National Union of Students, as well as being involved in a national training programme.

Mr Phillip Whitehead, Labour's higher education spokesman, described the 16-19 proposals as "the absolute cutting edge" of his party's education policy at a weekend conference in London.

They would without doubt provide Labour's greatest challenge and take priority for resources before other educational measures, he told a conference of socialist alternatives for post-school education.

Mr Whitehead discussed the principles of open access to schools, increased co-operation between schools and colleges, allowances for all student trainees, and a Tertiary Council to validate all the different qualifications currently available in the 16-19 bracket.

News in brief

Union bid to heal Welsh breach

As students in Wales today held occupations over the lack of Welsh medium teaching, their union leaders held out an olive branch to breakaway student unions at Aberystwyth and Bangor.

Welsh National Union of Students president Mr John Slater wrote to the two independent Welsh-speaking unions: "Our differences over working within official student unions will no doubt continue but it would be a crime if this resulted in us not working together on the issue of Welsh medium teaching."

NUS Wales is calling an open conference to consider a common programme of action on the issue in July - and the two independent unions have been invited to take part.

Layman appointed

Selwyn College, Cambridge, has broken with tradition and appointed a layman as its next master for the first time since it was established as a Church of England foundation 101 years ago. Professor Alan Cook, a distinguished physicist, and since 1979 head of the Cavendish, which houses the department of physics, will take over as master in October. He succeeds Professor William Chadwick who has been master since 1956.

Ups and downs

Unemployment among Cambridge graduates rose slightly last year but still remains significantly lower than the average for all universities, according to the latest annual report of the university appointments board, published this week. The number of students still seeking employment six months after graduation was 8 per cent in 1982 compared to 7 per cent the previous year.

Chosen few?

Faculty deans in Ulster's new polytechnic should be elected and not appointed, argues the Association of Polytechnic Teachers. The APT has told the steering group overseeing the merger between Ulster Polytechnic and the new university that an elected dean would be the servant of a faculty, while an appointed one would be its master. The new institution's draft statutes, which leave the method of choosing deans open, should be amended to reflect this, it says.

Life and work

Professor D. C. Smith, Sibthorpian professor of rural economy at Oxford University, has been elected biological secretary of the Royal Society. Professor Smith, whose main interest lies in the biology of symbiosis, is a member of the Agricultural Research Council and also chairs the biological sciences committee of the Science and Engineering Research Council. He succeeds Sir David Phillips, who has been appointed chairman of the Advisory Board for the Research Councils.

Fresh strategy

A new 16-week course which will give people planning to start a small business a thorough grounding in management strategy starts in the school of industrial and business studies at Warwick University this October. The "new enterprise programme" will also link up with the university's science park which aims to promote high technology ventures.

Adult literacy projects may develop more local flavours

by Karen Gold

A significant change of emphasis in adult literacy and basic skills projects is likely to be recommended to the Department of Education and Science by the end of this month.

The management committee of the Adult Literacy and Basic Skills Unit is to decide on proposals to the DES for its own future after the expiry of its current remit in 1985. Following consultation in local authorities throughout the country, the most important development for the committee to consider is a move to support projects of local rather than national importance.

CNAAs' police investigation

by Felicity Jones

Honours degree courses in police studies are to be the subject of a special conference being planned by the Council for National Academic Awards.

There are currently no such degree courses either in the public or university sector but several colleges and polytechnics have attempted to get them validated.

While the CNAAs has not categorically turned down proposals from the Polytechnic of Wales and New College, Durham, for example, its public and social administration board has come across several problems to do with the nature of a professional degree for police officers.

Pressure for degree courses has come from the police themselves. A recent report prepared by the training committee of the Association of Chief Police Officers made the case for developing professional training at degree level.

There are already a large number of specialist courses validated by the

Business Education Council and police studies options are offered in the public sector as part of pre-time degree courses in public administration at Ulster, Wales and Manchester polytechnics.

Part of the problem is whether a degree solely for police officers is really necessary. Manchester Polytechnic, in collaboration with the Greater Manchester Constabulary, has already decided that it does not want a separate degree but wants to develop its public administration course. It has just received approval to develop the course to meet the special needs of the police.

The three year part-time courses tend to have options geared to the needs of the police officers on the course who are usually in the majority at the three polytechnics which run them.

Mr John Brennan, registrar for business and social studies at the CNAAs said that the recent proposals for a full degree had raised issues which the board felt needed to be explored in a special conference to which course

developers and police representatives would be invited. It will be held in December.

One problem was the lack of academic literature relevant to policing. Mr Brennan said: "It is generally recognized that the literature is not sufficient to support honours degree work in this area. So one thing that has to be explored is whether other material relevant to the social sciences and administration can be adapted."

"The development of these courses is obviously a sensitive area. It will obviously take time to get it right though there is certainly no problem with the basic concept of having such degrees."

It is expected that after the decision not to validate the course proposal offered by the Polytechnic of Wales last week that further proposals will be submitted in due course.

The police service has been thinking about this development for some time. The Scarsden report has prompted wider scale discussion on their training.

Waldegrave admits 'inaccuracies'

by Patricia Santinelli

Mr William Waldegrave, minister for higher education, has admitted that information given to MPs on the threatened Catholic De La Salle College in Manchester was both inaccurate and inconsistent.

Mr Waldegrave has written to the De La Salle Higher Education Action Group in response to a 13-point objection document (published earlier this year in *The Times*) to acknowledge that these identified some inconsistencies and that he regretted the inaccuracies.

He admits, for example, that the Bachelor of Science degree was "erroneously omitted", that some of the figures regarding postgraduate and one year specialist courses were not comparing like with like, and that the college's BED targets for 1982 were incorrectly stated. Nor does Mr Waldegrave challenge figures showing that the college's recruitment was 97 per cent on target and not 25 per cent below as implied by MPs.

Mr Waldegrave claims that these mistakes were purely accidental and that there was no intention of misleading the House or supporters of the college. He says that the source of some of the inaccurate figures was from the National Association of Teachers in Further and Higher Education handbook for 1980.

The College Action Group says it deplures the errors and believes that the information could seriously harm the college's case for the restoration of initial teacher training courses. Staff and students of the college are to continue to press MPs to obtain further clarification of Mr Waldegrave's explanation.

However, the Department of Education and Science has already written to the college to say that it might reconsider its decision to close teacher training after its case has been heard in Open Court in June. The main thrust of the college's case is the retention of its historical status of teacher training places based on the size of the Catholic population.

Teaching links urged

A true partnership between initial training institutions and experienced staff in schools is a major ingredient in ensuring high standards as primary training expands, according to Ms Pauline Perry, chief inspector for teacher training.

Writing in the National Union of Teachers' Primary Education Review, Ms Perry says the teacher training system faces perhaps one of its greatest challenges with the need for a major transfer of its efforts and resources from secondary to primary training.

"There is no doubt in my mind that at the heart of the process for solving the staffing problem and improving the structure, content and value of training courses is the move towards a closer working partnership with schools and a more school-based approach to training," Ms Perry says.

She adds that once a greater use of school experience and teaching practice as the central powerhouse of the training courses has been achieved, as it has already been in some institutions, then it should be easier to ensure that in all cases the remaining theoretical parts of the course visibly relate to the tasks which teachers perform in their early years at school.

Discussing the future role of professional committees currently being investigated by the Advisory Committee for the Supply and Education of Teachers, Ms Perry says it will be important for these to retain their independence.

"They should avoid becoming drawn into the inwardness of academic course design, and should bring to the process of course approval the freshness of professional experience, and first hand knowledge of the day to day life in the schools."

Her view of a closer partnership between institutions and schools is shared by Mr Leonard Marsh, principal of Bishop Grosseteste College, writing in the same review. He argues that each college ought to take a major initiative and the school-based experience of its tutors.



Miss Rachel Stockdale of the British Library's manuscripts department examines the manuscript of Edmund Rubbra's second symphony. The library has just acquired a substantial collection of work by Rubbra, one of the outstanding British composers of the twentieth century. The collection is described as one of the most important bought in recent years, comparable to the library's holdings of Elgar and Vaughan Williams.

Enterprising PNL takes over workshop project

by Felicity Jones

The first of the Greater London Enterprise Board's science and technology network centres should be set up in liaison with the Polytechnic of North London by the end of the year.

The North London Centre of Product and Employment Development will take over leased premises close to the polytechnic's main building.

It will house workshops in mechanical engineering, electrical electronics, computer-aided machining and wood-working for people to come in and work on the design and development of new products. It will carry out support work with trade union groups whose members are faced with redundancy to try and work out an alternative strategy to keep jobs intact.

To begin with the centre will be mostly used for student projects. In return the resources of PNL will be available to those using the workshops.

The centre, which should be the first of many in London, was an initiative of the Greater London Council who handed it on to GLEB for funding. The planning of the centre was undertaken by PNL, Islington borough council, the local trades council and the Centre for Alternative Industries and Technical Systems (CAITS), which is now based at PNL.

Development worker Dot Lewis said that they hoped the workshop would be open by December. It will be used by those people in north and east London who do not normally have access to advanced equipment to try out ideas or get training. It is hoped that the network will eventually extend to another centre perhaps based on NELP.

An international conference is to be held at PNL on May 14 on "Making Jobs". The speakers will include representatives from the science shops in the Netherlands and Denmark. Dr Mike Cooley, technical director of GLEB and Brian Lowe, coordinator of the Unit for Development of Alternative Products which is based at Coventry (Lanchester) Polytechnic.

The former professor of the history of technology at the Massachusetts Institute of Technology, Professor David Noble and currently curator of the Smithsonian Institute will also be speaking.

The building in the city centre should be completed in autumn 1987. The academy has commissioned an opera to mark the opening, based on Tom Stoppard's play *On the Razzle*, from

the composer Robin Orr, a former professor of music at Glasgow and Cambridge.

A £15m science annexe to the National Library of Scotland should also be completed in 1987. The Scottish Science Reference Library will house both the National Library's scientific books and journals and the collection of the Royal Society of Education.

The building in the city centre should be completed in autumn 1987. The academy has commissioned an opera to mark the opening, based on Tom Stoppard's play *On the Razzle*, from

The British Council might lose its youth exchange budget by April 1985 if ministers implement recommendations in a new report.

The report on youth exchanges between Britain and other countries is based on a review by Mr Geoffrey Cockerill, former secretary of the University Grants Committee. It was jointly commissioned by the Department of Education and Science and the Foreign and Commonwealth Office.

Mr Cockerill has recommended that a new Youth Exchange Unit, alongside the Central Bureau for Educational Visits, should be set up to promote the growth of youth exchanges and allocate grants.

This new unit would not be separately funded and would come under the

Poor conditions 'cost research cash'

by David Jobbins

Inadequate conditions of service for research staff may be losing income for financially hard-pressed universities, the chairman of the university academics' advisory committee on research staff has warned.

Dr Brian Salter, chairman of the Association of University Teachers' national advisory group on research staff told a conference in London that low morale and high staff turnover was leading to inefficient research capability at a time when universities were increasingly looking to outside sources of revenue.

Of Britain's 10,000 research staff, representing a quarter of university academics, 81 per cent had been employed for less than five years and 71 per cent were under 33.

There was no training for team research, management or fund-raising skills, and no career structure, he said. "No business would organize itself in this way. It is the antithesis of any rationale for contract research."

"Universities are quite susceptible to the suggestion that they can organize research more efficiently than they do at present. They must be losing business and could be persuaded to make changes because they might benefit, for example by making money."

The AUT-organized conference, at which 40 universities were represented, is a precursor to the decision expected at the union's summer council later this month to convene a meeting of research staff in September to elect a representative committee specifically to advise the executive on issues relating to research staff.

Dr Salter says that some progress has been made over salaries and the union has persuaded a number of institutions to drop the notorious waiver clauses under which researchers are asked to surrender their rights to redundancy pay and action against unfair dismissal. Some differences emerged during the conference about the executive's propo-

sal for a representative meeting in September to elect a national committee of six with two members co-opted by the executive.

But there appears to be room for a compromise over issues such as the limitation to two delegates per institution, and the tabling of amendments to motions submitted to the September meeting before the issue is put to the test at the AUT's council in two weeks' time.

Junior AUT vice president Dr Ron Emanuel appealed to delegates not to consider blocking the executive's proposals when they came up for ratification - and offered his personal wish that for the first time a researcher could be elected to the national executive.

It seems that at last the AUT may have bridged the perennial gap between the aspirations of non-tenured vulnerable and young researchers and the older guard on the executive who still regard research posts as an apprenticeship for a tenured teaching job.

Opening the conference, Dr Emanuel said there was no disagreement within the AUT that research staff conditions of service were a "total disgrace".

About 7 per cent of research staff are in AUT membership a higher proportion than among academic staff.

The union is encouraging local associations to set up their own research committees to investigate the employment circumstances of contract staff. Surveys have already been carried out at Bristol, Leeds and Manchester. In Glasgow local pressure has forced the university not to enforce the waiver clauses for staff continuously employed for five years or more.

But in a statement the local researchers group deplores the failure of the AUT nationally to lead discussions on the issues, warning that this has led to the "backward step" of demands from researchers for a separate career structure with no teaching commitment.

Computer holidays for the disabled

Disabled people on computer holidays will use Southampton University's purpose-built student accommodation this summer.

Clarkson House is a hall of residence designed for students with all types of disability, as well as able-bodied ones. Rooms, doors and corridors are specially wide to allow easy access for wheelchairs. The kitchens have worktops with adjustable heights and there are washing facilities for people who have no use of their hands.

The holidays are being organized by Management and Personnel Services of Southampton, who run computer holidays for beginners and professional groups.

Dr Lionel Wardle of MAPS said: "Being able to use a microcomputer can open up a new world for the disabled, providing them with a new means of communication, for example for the deaf or those with limited motor abilities. For some it provides the opportunity to earn a living and be independent."

The course will cost £160 a week and MAPS will approach the Department of Industry for financial help to reduce the cost under the department's micro-processor appreciation programme.

INDUSTRY AND HIGHER EDUCATION: FUTURE COLLABORATION

A one-day conference organized by the Institute of Manpower Studies in association with the *Times Higher Education Supplement* will be held on Thursday, 7 July 1983, at the London Business School.

Among the speakers will be Mr Kenneth Durham, chairman of Unilever, Lord Flowers, rector of Imperial College, Professor John Ashworth, vice chancellor of Salford University, Professor Laing Barden, director of Newcastle upon Tyne Polytechnic, Mr Hugh Wassell, formerly engineering director of GEC-Marconi, and Mr Brian Oakley, secretary of the Science and Engineering Research Council.

The conference will start at 9.45 am and end at 4.30 pm. The fee will be £65.

APPLICATION FORM

I should like to book the following Conference place(s) at £65 per delegate.

Name (block letters) Dr/Mr/Ms/Miss

Present Position

Organisation

Address

..... Tel No

.....

A cheque for £..... is enclosed, made out to "The Institute of Manpower Studies".

OR

Please send invoice to

.....

.....

.....

The completed application form should be returned as soon as possible to:

Kaye T. Smith, Education and Training, Institute of Manpower Studies, Mantell Building, University of Sussex, Falmer, Brighton BN1 9RF (0273 686751).

Overseas News

Leader's name sparks trouble

from A. S. Abnham

BOMBAY
The provincial government of Maharashtra state (capital Bombay) is gearing itself to deal with renewed trouble in the Marathwada region following the defeat of a bill enrolling for the renaming of Marathwada University after the great Untouchable leader, Dr B. R. Ambedkar.

Five years ago, the assembly passed unanimously a resolution recommending that the university be renamed after Dr Ambedkar who, among other achievements, was the architect of India's constitution.

Although it remained unimplemented, its presence on the record book gave Dalits (the oppressed, as militant Untouchables prefer to call themselves) the hope that it would eventually be carried out. Now, that hope has been dashed.

The state government is apprehensive of the consequences of the assembly's rejection of the bill because, not long after the 1978 resolution was passed, opponents of renaming the university went on the rampage in Marathwada, provoking one of the worst anti-Untouchable pogroms in independent India.

As a sop to the Untouchables the provincial government has decided to name a technical university which is going to set up in another part of the state (not far from Bombay) after the Untouchable leader.

Quebec colleges dispute goes on

from Mark Gerson

MONTREAL
A conciliator has failed to end the dispute between the Quebec government and its 11,000 community college teachers. Two thirds of the college teachers have rejected modifications to their government-imposed contract and have urged their union in step on the pressure.

As the academic year is nearly over, further strike action has been ruled out for the moment. The teachers are threatening new legal walk-outs in the autumn if the government does not alter its conditions.

In January, community college lecturers were joined by the province's 65,000 public school teachers to a three-week legal strike. They were protesting against 20 per cent salary cuts and changes to their workload and job security. The strike ended after the provincial legislature passed emergency back-to-work legislation, described as the harshest in Quebec history, which included provisions ranging from stiff fines to dismissals.

Both the back-to-work law and the legislation which fixed salaries and working conditions for the next three years have been condemned by Canadian and international civil rights organizations. Teachers and other public employees are now challenging the new laws in court.

Petition rejected

Pakistan's supreme court regarded the university examinations system to be in shambles because non-observance of time schedule for examinations resulted in "colossal waste of the precious time of our youth".

The court was approached by a group of Lahore medical students who petitioned to the court to direct the Punjab University not to postpone the final professional examination of the MBBS (Bachelor of Medicine and Surgery) from April 6 to July 1.

A three-member bench of the supreme court however, dismissed the students' petition.

Campus rumpus

The chancellor of the University of Maryland says he would like to ban photographers from Playboy magazine from visiting the College Park campus this month. As part of its "Girls of the Atlantic Coast Conference" series the magazine plans to shoot nude photos for its September "back-to-campus" issue. Staff at Playboy say they doubt the chancellor can stop them and they plan to shoot the exposé on schedule.

Britain better off in terms of tenure

by Ngaio Crequer

British academics are a lot better off in terms of tenure than colleagues in many other countries according to a review at a recent conference held by the Association of University Teachers.

The United Kingdom Association of University Teachers recently hosted a conference attended by delegates from equivalent organizations in Canada, Eire, USA, Australia, New Zealand and France.

At one session contributors explained what tenure meant in their country. The following is a summary of some of the discussion.

Canada: Tenure is not a legal concept, nor is it found in provincial or federal laws. Each university itself defines tenure. Prior to the 1960s it was governed by master and servant legislation. Courts held that lecturers only had annual contracts which could be terminated for a great variety of reasons. In 1920 disloyalty to the president was grounds for removing a tenured lecturer.

The situation changed dramatically in the late 1950s and 1960s when it was not possible to run the universities as a club, and when returning war veterans would not tolerate that kind of governance. What was happening in the United States, particularly the development of the American Association of University Professors, also had an influence.

From the 1960s onwards there was pressure on faculty organizations to negotiate terms and conditions which would establish tenure. Two thirds of faculty are covered by labour legisla-

tion. The union has recommended that before any dismissal can take place, there should be binding arbitration by a third party.

In general, arbitrated institutions opt for an elected tribunal, the French model for outside arbitration, usually the better system. The union has recommended that arbitrators have a full mandate to deal with substance and procedure. It has also urged members to include within collective agreements provisions for exigency and redundancy and to make procedures as tough as possible. They recognize that institutions can go bankrupt and so their policy is one of collaboration.

Australia: Each university defines tenure for itself, and this can range from long-term security to contract renewable after six months' notice. There is a difference between the legal situation and custom and practice. In a number of universities staff have continuing contracts, which may be terminable, but by custom and practice are not. No university has yet seen fit to abuse that.

The area of those who do not have tenure is becoming much more important. The Government held a federal eight-day public hearing into tenure. The report resulting from it was prefaced with remarks that the advantages of tenure substantially outweighed the disadvantages, but that not everyone should have tenure.

It is generally agreed that a fixed proportion of posts should not be tenured, the question is how many. The inquiry said at least 10 per cent of positions at lecturer level and above

should no longer be tenured.

The union has always opposed fixed term appointments on the grounds that it attracts people of lesser quality. But it is now considering whether it should change its mind and admit that fixed term posts should be converted to tenured posts. Also, should there be more than one type of post, something in between a full tenured post and a three to four year fixed term post which then expires.

United States of America: There are longer periods of review before the vesting of tenure with some form of financial exigency as a condition for termination. The question of post-tenure review and its implications for the nature of tenure is emerging in the US, as it is in Great Britain.

There have been serious financial difficulties in a number of states but no massive retrenchment. Where retrenchment due to financial exigency has been proposed faculty has responded to prevent administrators from firing tenured faculty. At two universities faculty invocation of union standards and lobbying in the legislatures has forced the administration to drop plans for substantial firing of academics.

But the threat of claims of financial exigency, and the cuts in non-tenured staff has meant that morale on many campuses is low. One view is that the efficiency of any university that the social cost outweighs any benefit from salary savings through involuntary termination.

France: Tenure is a contract be-

tween the universities and the teacher. Teachers are in principle part of a civil service, and they have the right and duties of the civil service. Employment is for life.

During the last 10 to 15 years the number of universities increased. The policy of the government was to limit the number of teachers to tenured posts. There were temporary contracts of one year, six months or three years which were not renewed. Fewer resources for the universities also meant that they had to take on a lower level.

Since 1981 the union has won the principle that the right of the civil service should be extended. The number of education has given tenure to more than three-quarters of people who did not have it before.

Ireland: In the four university colleges there are two types of staff, statutory and non-statutory. The university passes a statute creating a post, and this goes before Parliament. Although college or assistant lecturers are not mentioned in the statute, they are given contracts which only allow dismissal for "good cause".

It is not possible casually to dismiss statutory or non-statutory posts. Parliament would have to be involved otherwise.

At Trinity College, Dublin, contracts are less secure superficially, with termination by a three months' notice either side. But in fact what prevails in the university colleges would influence it, so there seems little danger.

US universities tighten rules on plagiarism

WASHINGTON

In the wake of recent white publicity given to university researchers who have been charged with falsifying experimental data, the Association of American Universities has urged institutions of higher education to establish more aggressive policies for preventing fraud, plagiarism, and other forms of misconduct in research.

The association, representing 52 major American research universities, has issued that recommendation in a report outlining ways to deter unethical behaviour in research - including a warning to scientists that they should take responsibility for ensuring the integrity of the research conducted by their subordinates.

The report, which was drafted by the association's committee on the integrity of research, acknowledges that recent instances of research fraud threatened to erode public confidence in scientific investigation and in the ability of universities to deal with allegations of misconduct.

"Although serious violations of honesty in research may be rare, those that do occur strike at the very heart of the enterprise," said the report of the committee, which was chaired by William H. Danforth, chancellor of Washington University in St. Louis, Missouri.

Advances in knowledge depend on trustworthy data and honestly reported conclusions.

In one of the most controversial cases of alleged misconduct disclosed recently, a former Harvard medical school scientist was barred from receiving federal research funds for ten years after government investigators concluded he had falsified data in experiments financed by the National Institutes of Health. The institutes, with an annual budget of \$4 billion, are the principal source of federal support for

biomedical research. The sanction against the former Harvard research associate, John R. Dasee, were the stiffest ever imposed by the government for alleged fraud in federally financed research.

Further controversy in the case was stirred recently when Emory University's medical school announced that an investigation there had raised questions about the validity of research Dasee conducted while he was at the school from 1974 until 1979.

The report urged institutions and scientists to adopt more explicit procedures for preventing and punishing such abuses as violations designed to protect research subjects, fabrication of experimental data, and efforts to take credit for the work of another researcher.

Although blatant plagiarism is easily detected in fields where many researchers are active, the report said that the academic community has been too tolerant of more subtle forms of plagiarism. "Inadequate citation and pervasiveness in referencing, submission of the same data in more than one publication by the same author, and similar abuses, do occur with some regularity."

In strong words of warning to senior researchers, the report said that scientific leaders should be responsible for establishing an atmosphere of "intellectual honesty" and for assuring the integrity of the work of their research staffs. The report recommended that laboratory directors conduct routine audits of data collected by their subordinates.

While calling for stronger measures to guard against breaches of scientific integrity, the report also urged universities to take steps to protect researchers against the damage of unwarranted accusations.

Postgraduate awards famine puts research in danger

from Lindsay Wright

WELLINGTON
New Zealand's universities have reacted quickly to what is seen as an abrupt and calamitous decline in the number of postgraduate awards from the University Grants Committee.

Research students have been a key element of university research programmes for 20 years. For many of them UGC Postgraduate Scholarships, currently valued at over \$400,000 a year, have provided them with the means to enrol.

search which was completed to publication stage.

Protests to the Minister of Education, Mr Marv Wellington have drawn the enigmatic reply that "it may well be that research programmes may be reduced as a result of the cutback in the number of scholarships offered."

Fifteen years ago, UOC Postgraduate Scholarships were able to be awarded to some candidates with particularly good second class honours.

from Geoff Maslen

MELBOURNE

After less than two months in office, Australia's new federal minister for education and youth affairs, Senator Susan Ryan, has generated a decided air of optimism in higher education quarters.

Universities and colleges are viewing the future through the rose hue that still surrounds the Labor government's accession to power. Although there will not be the massive increase in expenditure that followed the election of the Whitlam government in 1972, four years which were not renewed. Fewer resources for the universities also meant that they had to take on a lower level.

While Australia must contend with a massive budget deficit this year, Senator Ryan has made it clear she will resist any attempts to cut back on education. She is going ahead with plans to put Labor's policy on increased student participation rates and increased grants to students into effect.

Her first efforts are directed at getting unemployed teenagers back into school and post-secondary education programmes, and encouraging students to continue with their education, rather than going on the dole. This will involve increasing grants under the Tertiary Education Assistance Scheme to bring them to the level

From convent to feminist convert



Ryan: most powerful feminist

of single adult male payments: assisting universities and colleges with providing emergency loans to students, and introducing an improved system of support for families unable to keep their children at school.

Senator Ryan's decision to scrap the federal student loan scheme, which was about to be introduced by the Fraser government, and to replace it with a new scheme at the Australian National University from spending fee money on political activities, have been generally welcomed by

academics. So too have her plans to introduce a federal Anti-Discrimination Act and to increase opportunities for women in higher education.

Senator Ryan is probably now the most powerful feminist in Australia. She is also the first woman to occupy a government front bench in an Australian Labour administration and has 12 female Labor colleagues in the federal Parliament.

Susan Ryan was born in Sydney 41 years ago to Australian-Irish parents and went to a convent school before graduating in arts from Sydney University. She married a diplomat at the age 20, became a teacher a year later and had two children by the time she was 23. She became a lapsed Catholic at 24, a committed socialist at 27, a feminist at 29 and was divorced at 31.

She completed postgraduate studies at the Australian National University where she earned a masters of arts degree. She belongs to a surprisingly large number of Australian feminist groups who were convent-educated, including Germaine Greer who she says has been a major influence on her life and who she often sees.

Susan Ryan helped form the women's electoral lobby - a political pressure group. When Labor took office in 1972, she became a key lobbyist for the Australian Council of State School Organizations in Canberra. In 1974 she was elected to the Australian Capital Territory's legislative assembly but resigned in 1975 to become a representative of Canberra in the Australian senate.

Since 1977, Senator Ryan has been variously opposition spokesman for communications, media, the arts, and aboriginal and youth affairs, and has attracted strong support from a wide cross-section of the Australian public for her ready intelligence, her compassion and her empathy.

She made her concerns about the future of Australian youth very clear at the recent national economic summit. As she pointed out, the severe downturn in economic growth and employment has created an unprecedented crisis for Australia's young people:

● At 29 per cent of the full-time teenage labour force, the current unemployment rate is the highest ever recorded;

● Just on 80,000 full-time jobs held by teenagers have disappeared during the past 12 months;

● Since 1975, the average length of unemployment experienced by young people has doubled and appears to be still increasing.

The president of Harvard University has used his annual report to the board of overseers to lash out against American law schools which, in their failure to address issues outside academic, have contributed to a system he called "grossly inequitable and inefficient".

Derek Bak's no-holds-barred indictment of "a flawed system" comes in the middle of intense debate among the senior staff of his own law school over the direction the curriculum should take.

While observing that universities cannot be expected to solve all of the profession's woes, Mr Bak wrote that they can play an important role by generating "new knowledge" and focusing more effort on problem-solving skills among the "able and ambitious" students they take in.

"Unfortunately," he wrote, "most professional schools have done little to meet the challenge. They have concentrated on training practitioners for successful careers while failing to acquaint them with the larger problems that have arisen so much concern within society."

Mr Bak is a lawyer and former dean and professor at the Harvard law school. In his latest report he wrote: "The blunt, inextinguishable fact is that this nation, which prides itself on efficiency and justice, has developed a legal system that is the most expensive in the world, yet cannot manage to protect the rights of most of its citizens."

Sharing the blame, he suggested, were not only the teachers, but the students, who displayed a striking lack of professional commitment. "Unlike medicine, few young people decide to be lawyers early in life. Instead, law schools have traditionally been the refuge of able, ambitious college seniors who cannot think of anything else they want to do."

Thanks to the numbers of lawyers - double the supply since 1960 and 20 times the number per capita in Japan - the United States has more law, more regulations, and more bureaucracies in deal with them, he explained. This proliferation served only "to clutter the field and to curb entrepreneurship, creativity, and progress."

The United States he noted, was badly in need of "more enlightened public servants, talented business executives, more loveable engineers, more able high school principals and teachers" but "far too many" were becoming lawyers.

To study the effects of laws and regulations on the public at large - and ultimately to make some change - Mr Bak believes that law school teachers will need to employ techniques used by social scientists.

Flavour lost in mediocre courses

from Janet Hook

WASHINGTON

A government commission has delivered a sharp rebuke to American schools and colleges and called for tougher academic standards to reverse what is seen as a steep decline in the quality of education at all levels.

The National Commission on Excellence in Education contends that a "rising tide of mediocrity threatens our very future as a nation." It has recommended higher standards for admission to college, a more rigorous academic programme for high school students, and increased financial incentives to attract bright students into the teaching profession.

In a report released by the White House last week the commission said: "If an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war. We have, in effect, been committing an act of unthinking, unilateral educational disarmament."

The 16-member commission of college and school officials was appointed by the education secretary, Mr Terrel H. Bell, in August 1981 to address "the widespread public perception that something is seriously amiss in our educational system" and to make recommendations for improvement.

Mr Bell strongly endorsed the commission's recommendations when the report was released last week. "This report is particularly well received because it offers a blueprint for educational renewal," Mr Bell said.

Based on more than a year of research, public hearings and consultation with education experts, the commission offered a dismal diagnosis of the state of American education.

Although the average citizen today was better educated and more knowledgeable than the average citizen of a generation ago, the report said, the average graduate of American schools and colleges was less well educated today than 25 years ago.

The number of remedial mathematics courses offered at public four-year colleges increased 72 per cent between 1975 and 1980, the commission reported. Such courses for underprepared students now make up one quarter of all mathematics courses offered by those institutions, the report said.

The commission was particularly critical of students' increasing lack of preparation in basic academic subjects. A commission study found that fewer high school students had been taking vocational and college preparation courses, while the proportion of students taking less demanding "general tracks" programmes increased from 12 per cent in 1964 to 42 per cent in 1979.

Mr David P. Gardner, the chairman of

the commission, who is now president of the University of California, said: "Such courses prepare students neither for work nor for further education."

The commission found that a quarter of the academic credits earned by students in "general track" high school programmes were in areas peripheral to basic academic subjects, including physical education, remedial classes and "personal service" courses on subjects like "training for adulthood and marriage."

Secondary school curricula have been homogenized, diluted, and diffused to the point that they no longer have a central purpose," the report said. "In effect, we have a cafeteria-style curriculum in which the appetizers and desserts can easily be mistaken for the main courses."

Calling for renewed emphasis on the core academic subjects, the commission urged high schools to set higher requirements for study in English, mathematics, science, social studies and computer science before students may receive a diploma.

The commission also recommended: ● Colleges should raise their requirements for admission, using "more rigorous and measurable standards" including specific minimum scores on standardized tests of students' achievement in basic academic subjects.

● Pre-college students should spend more time in the classroom. It noted that in Britain and other industrialized countries, students often spent eight hours a day and 220 days a year in class. American schools should consider extending their school day from six to seven hours and lengthening the academic year from 180 to 200 days or more.

● Teachers' salaries should be increased as part of an effort to make education a more respected and attractive profession. "Too many teachers are being drawn from the bottom quarter of graduating high-school and college students," it said. To attract top talent into teaching, grants or loans should be offered to outstanding students who are preparing to enter the profession.

The commission's report received a mixed response from educators. Some higher education officials, long concerned about the declining quality of the high school graduates who have applied for admission to college, welcomed the support for higher educational standards.

But critics of the report said it gave too little guidance about how its recommendations - such as increased teachers' salaries and a longer school day - would be financed. State education budgets are being cut and the Reagan administration has sought to curtail federal support for education.

Get rid of the blinkers, lawyers told

from E. Patrick McQuaid

CAMBRIDGE, Mass.
The president of Harvard University has used his annual report to the board of overseers to lash out against American law schools which, in their failure to address issues outside academic, have contributed to a system he called "grossly inequitable and inefficient".

Derek Bak's no-holds-barred indictment of "a flawed system" comes in the middle of intense debate among the senior staff of his own law school over the direction the curriculum should take.

While observing that universities cannot be expected to solve all of the profession's woes, Mr Bak wrote that they can play an important role by generating "new knowledge" and focusing more effort on problem-solving skills among the "able and ambitious" students they take in.

"Unfortunately," he wrote, "most professional schools have done little to meet the challenge. They have concentrated on training practitioners for successful careers while failing to acquaint them with the larger problems that have arisen so much concern within society."

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Overseas news

Given the situation, Senator Ryan says, it could be expected that the incentive for young people to persist longer with full-time education would have increased. In fact, from 1975 to 1982 this was not the case.

Australia is behind other Western countries in full-time education participation rates. On OECD figures, in Canada, Japan and the United States, between 70 per cent and 90 per cent of young people stay on to the final year of school, or obtain a leaving certificate. In contrast, the percentage in Australia is 35.

Senator Ryan says that youth programmes will be reshaped and re-directed to ensure higher levels of participation in education so that over the next three years, full-time secondary and technical and further education enrolments will be increased by 30,000. Also the Curriculum Development Centre, which was scrapped by the Fraser government, will be re-created to help with developing more attractive and more broadly based curricula in secondary schools.

Senator Ryan has shown a single-minded determination to see that education should engage and use teenage sub-cultures in advantage. She has suggested, for instance, that video games and rock music might be incorporated into high-technology courses to attract young people to them.

Just on 80,000 full-time jobs held by teenagers have disappeared during the past 12 months;

Since 1975, the average length of unemployment experienced by young people has doubled and appears to be still increasing.

International academic body threatened

The only international organization solely for university academics faces further defections because of the continuing membership of South Africa.

Australians, Americans, Irish and Danes have already left the International Association of University Professors and Lecturers in protest at the presence of the University Teachers Association of South Africa.

Now the 34,000 member UK-based Association of University Teachers is expected to sever remaining formal links later this month.

Dissatisfaction with the IAUP's failure to expel the South Africans is only a part of the AUT's decision to pull

out. Its leadership has felt for some time that the organization, which has no full-time secretariat and only a handful of affiliated associations mainly in Western Europe, is not proving effective.

The AUT has not paid its annual £106 subscription to the IAUP since its last rule-making conference in 1982. Although the UTASA protests that it does not condone apartheid, AUT leaders feel they can no longer remain in the same organization because of a policy decision taken by the union in 1980 imposing a total boycott of any form of contact with South African universities and academics.

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TT3

NOTICE BOARD

Appointments

Universities

Edinburgh

The University of Edinburgh has appointed Dr David McQueen, presently associate professor in the department of behavioural sciences at the Johns Hopkins University School of Hygiene and Public Health, as the director of the new Research Unit in Health and Behavioural Change.

Surrey

Visiting professorship Professor J. D. Birchall (biochemistry); Professor P. G. Goss (environmental pathology); Professor J. B. Rose (chemistry); Professor R. M. Johnson (educational studies); Professor S. Medlik (hotel, catering and tourism management); Professor F. A. Heller (sociology).

Readership Mr L. N. Phillips (civil engineering - visiting); Dr O. F. Clemen (physics - visiting); Dr P. E. J. Fleeth (physics - visiting); Dr R. P. Parker (physics - visiting); Dr J. R. Jones (chemistry); Mr H. Katak (economics); Dr R. L. Douglas (general studies); Dr R. H. Hinton (Roberts Institute of Industrial and Environmental Health and Safety).

Senior lecturer Dr L. S. A. Mansel (electronic and electrical engineering); Dr J. Arendt (biochemistry - part-time); Dr B. J. Gould (biochemistry); Mr K. Koch (linguistics and international studies); Dr T. Messenger (music).

Lecturership Mr M. C. Matthews (geotechnical engineering); Mr Whitfield (catering studies); the Revd N. Walters (educational studies); Dr S. L. Center (psychology); Mrs D. Johnson (English Language Institute); Mrs S. M. Ose (English Language Institute); Dr M. Ghedini (chemical engineering - temporary).

Departmental headship: Dr A. P. Midonick (metallurgy and materials technology); Professor D. E. James (educational studies); Mr Turner (human biology and health); Dr A. W. S. Tarrant (home economics).

Dean: Professor W. E. Williams (mathematical and physical sciences).

York

Permanent chairs: Dr R. E. Heister (chemistry); Senior lectureships: Dr S. J. S. Hardy (biology); Mr J. N. Lazonby (education); Dr J. M. Malcolmson (economics and related studies); Dr R. A. Reid (biology).

General: Dr Ian Wand (computer science - head of department); Mr Richard Hainsworth (conference officer); Dr W. J. Sella (Provost of Goodricke College); Dr Richard Whittington (lecturer, computer science); Susan Moylan (research fellow - Social Policy Research Unit); Rainer Nolte (Lektor - German); John Palmer (research fellow - biology); Gillian Parker (research fellow - Social Policy Research Unit).

Polytechnics

Teesside
Professorships (personal): Mr H. MacL. Currie (head of the Department of Humanities); Dr J. H. Hord (head of the Department of Electrical Instrumentation and Control Engineering).

General

The Lords Commissioners of H. M. Treasury have appointed Professor Sir Alan Harris CBE as a trustee of the British Museum in succession to Professor Laurence Olivier, FBA, LL.M. who will be retiring on the expiry of his term of office.

Dr James Kearns, lecturer in modern languages at Dundee University, has been appointed Leverhulme Visiting Lecturer at the British Institute in Paris for the academic year 1983-84.

Polytechnic, are holding their annual course and conference, entitled 'The National Scenario - Education and Training 14-19', at the polytechnic on July 7 to 9. Details from Mr R. Vernon, 117 Sussex Way, Cockfosters, Herts EN4 0BII.

The Royal Society of Health is organising a symposium on population changes and their implications for health care in the 1980s and 1990s, to be held at Selwyn College, Cambridge, on July 5 to 7. Details: 01-235 9961.

In his inaugural lecture at the University of Keele, Professor Alan Vance of the department of German will speak on 'Hitler's War in German Fiction'. Location: the Foundation Year Lecture Theatre, Time: Wednesday May 4 at 8.15 pm. Admission free.

Courses

Garnett College

Education and Training for Teachers and Administrators in Further Education

Applications are invited for the following courses:

MASTER OF ARTS - Council for National Academic Awards
A Master's Degree in further education extending over two years' part-time study and involving the inter-disciplinary study of the further education system and its curriculum. Candidates should be employed in the teaching or administration of post-compulsory education and should normally have a BEd (Hons) or other equivalent qualification.

BACHELOR OF EDUCATION - Council for National Academic Awards
Three years' part-time study. Prepares candidates for further study and research in further education. Candidates should be serving teachers with an initial teaching qualification and a minimum of two years' teaching experience.

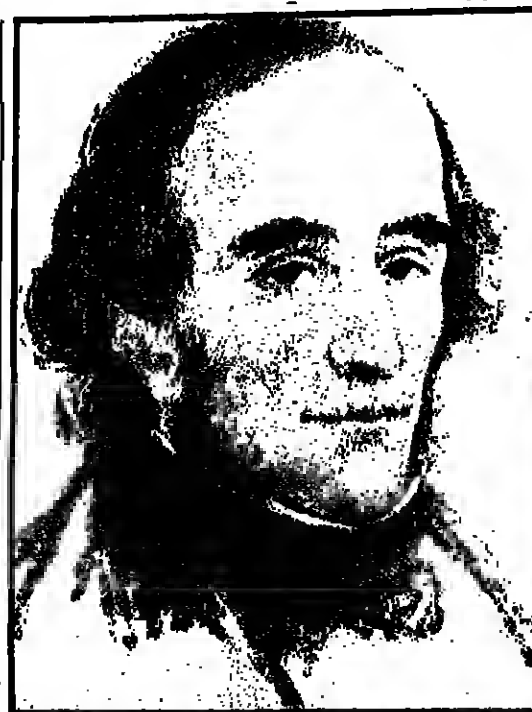
DIPLOMA IN PROFESSIONAL STUDIES - (Perspectives) Council for National Academic Awards
A Diploma in further education extending over two years' part-time study (or one year full-time) and involving the study of the theory of further education to first degree level. Candidates should be employed in the teaching or administration of post-compulsory education and should hold a Certificate in Education.

DIPLOMA IN EDUCATIONAL MANAGEMENT - University of London
Two years' part-time study. Aims to provide a sound academic grounding in educational management and an opportunity to improve management skills. Candidates should have substantial teaching and/or administrative experience in further education or associated fields.

DIPLOMA IN EDUCATIONAL TECHNOLOGY - (for Further Education) University of London
Two years' part-time study. Develops professional competencies in the management and organisation of learning resources. Candidates should have initial professional qualifications and be experienced teachers, librarians or administrators in further education or associated fields.

The College welcomes applications from all suitably qualified persons including those from minority or disadvantaged groups.

Candidates should apply as soon as possible, specifying the course(s) in which they are interested, to the Principal (Mr P. Garnett College, Downshire House, Roehampton Lane, London SW16 4HR (Telephone: 01-789 8833).



The virtuoso violinist and composer Nicola Paganini; two contrasting impressions of a violent and complex personality. From Alan Kendall's biography, published by Elm Tree Books, ISBN 0 241 10845 4.



Grants

York

Department of biology \$107,400 from the International Union for Conservation of Nature and Natural Resources (ecological survey of Bahrain and Oman); \$85,000 from the EEC and \$64,000 from the Balfour Institute, Royal Swedish Academy of Sciences (expanded coal utilisation);

Recent publications

\$12,752 from the Stirling Winthrop Research and Development (mammalian DNA gyrase). Centre for South African Studies: £72,000 from the Leverhulme Trust (Zimbabwe's economy); Institute of Social and Economic Research: £45,855 from the DHSS (alcohol abuse); £33,022 from King Edward's Hospital Fund for London (orthopaedic services); Language Teaching Centre: £23,250 from the Nuffield Foundation (French syllabus); Psychology: £31,155 from the Medical Research Council (avian hypernatremic syndrome).

Open University programmes May 7 to May 13

Saturday May 7

8.00-9.00 Evolution, Conquest of the Air (3304; prog 6).
9.00-10.00 Orson, 1938-39: The Spirit of the Human Spirit (3304; prog 6).
10.00-11.00 Substrates to interdisciplinary approach: Sampling (3304; prog 6).
11.00-12.00 7.40-8.00 The Development of Instruments and their Use in Earth Science, Meteorology and their Use in Earth Science (3304; prog 6).
12.00-1.00 8.00-9.00 The Development of Instruments and their Use in Earth Science, Meteorology and their Use in Earth Science (3304; prog 6).
1.00-2.00 8.00-9.00 The Development of Instruments and their Use in Earth Science, Meteorology and their Use in Earth Science (3304; prog 6).
2.00-3.00 8.00-9.00 The Development of Instruments and their Use in Earth Science, Meteorology and their Use in Earth Science (3304; prog 6).
3.00-4.00 8.00-9.00 The Development of Instruments and their Use in Earth Science, Meteorology and their Use in Earth Science (3304; prog 6).
4.00-5.00 8.00-9.00 The Development of Instruments and their Use in Earth Science, Meteorology and their Use in Earth Science (3304; prog 6).
5.00-6.00 8.00-9.00 The Development of Instruments and their Use in Earth Science, Meteorology and their Use in Earth Science (3304; prog 6).
6.00-7.00 8.00-9.00 The Development of Instruments and their Use in Earth Science, Meteorology and their Use in Earth Science (3304; prog 6).
7.00-8.00 8.00-9.00 The Development of Instruments and their Use in Earth Science, Meteorology and their Use in Earth Science (3304; prog 6).
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Integrating the intelligentsia

Peter Mauger discusses the role of intellectuals in Chinese society

Intellectuals in the West often see themselves as society's critics; in China for many centuries they have been seen, and have seen themselves as the servants of the ruling orthodoxy. For more than 2,000 years, until well into the nineteenth century, every poet, writer, every educated man was also an official, selected by the Imperial Examinations. Intellectuals, the sole possessors of knowledge, ran the country. As long as they served the interests of the Emperor they prospered; and there was little incentive for them to do otherwise.

The Opium Wars and the subsequent plundering of China by the European powers changed all that. Intellectuals, many of whom had been educated abroad or in the new schools largely staffed by foreigners, were imbued with a spirit of patriotism and an indignation at the realization of China's backwardness. Future leaders as disparate as Sun Yat-sen, Chiang Kai-shek, Zhou Enlai and Deng Xiaoping, spent many years in Europe or Japan. Liberal-minded, articulate young people, with influence far beyond their numbers, led the agitation for constitutional monarchy and later for republicanism.

The abolition of the imperial examination system in 1905 closed the privileged avenue of advancement to authority and influence to China's intellectuals and many of them were drawn into the growing revolutionary movement.

From the 1920s to the establishment of the People's Republic in 1949 intellectuals had three choices: they could ally themselves with Chiang Kai-shek and the Kuomintang, join with Mao Zedong and the Communists, or retreat into a neutral ivory tower.

The patriotic intellectuals who flocked to the revolutionary bases during the period of civil and anti-Japanese wars had their role defined for them by Mao in 1942. They had been deeply influenced by the bourgeoisie, he told them, in believing that there was freedom in the abstract, truth in the abstract, human nature in the abstract.

"In the world today all culture and art belong to definite classes and are geared to definite political lines. There is in fact no such thing as art for art's sake, art that stands above classes or art that is detached from or independent of politics. Proletarian and art are part of the whole proletarian revolutionary cause... and therefore occupy a definite and assigned position in Party revolutionary work as a whole."

In the final analysis, said Mao, the dividing line between revolutionary, non-revolutionary or counter-revolutionary intellectuals was whether or not they were willing to integrate themselves with the workers and peasants and actually did so.

In the drives against counter-revolutionaries in the 1950s, attempts made to "remould" intellectuals to this end

led to much distress and hardship, even some suicides, through constant surveillance, lack of defence, and long and tedious meetings at which they had to confess their misdeeds. But if intellectuals were to be of any use in the development of socialism this was no way to encourage them. Hence the "Double Hundred" campaign - "Let a Hundred Flowers Bloom", ran Mao's slogan, "Let a Hundred Schools of Thought Contend". The Communist Party officially advocated "freedom of thinking in literature, art and scientific research; freedom of debate, freedom of creative work; freedom to express one's opinion".

Intellectuals were not slow to respond to the invitation. A torrent of criticism, pent up for years, poured out over the government and the Party leadership. University teachers and students, journalists, writers, complained about overbearing Party bureaucrats about land collectivization, about the work-study programme calling on intellectuals to work regularly in factories or on the land. There were even openly counter-revolutionary criticisms: "Marxism is out of date... instead we must learn from the democracy of the capitalist countries, and turn to a new interpretation of capitalism... What a dull thing is this socialism!"

This was more than the leadership had bargained for. "We want flowers, not weeds, in our socialist garden." Those who had expressed themselves too freely were branded as untrustworthy and became social pariahs, some college teachers being rusticated from cities like Shanghai in some remote spot in inner Mongolia.

Mao urged a more tolerant attitude: "There are bound to be some who ideologically will always be reluctant to accept Marxism-Leninism and Communism. We should not be too exacting in what we demand of them; as long as they comply with the requirements laid down by the state and engage in legitimate pursuits, we should let them have opportunities for suitable work." But there were no more open criticisms of the system.

Nine years later came the cultural revolution and the fiercest attack ever on intellectuals, who were abused as "class enemies". The slogan was spread: "The more knowledge you acquire, the more reactionary you become." They were labelled "the stinking ninth" (the last of nine categories of class enemies, after landlords, rich peasants, counter-revolutionaries, bad elements, rightists, renegades, enemy agents and inveterate capitalist roaders).

A leading member of the government said recently: "A large number of intellectuals, including almost all heads of educational institutions, professors, doctors, social scientists, writers, artists and journalists, suffered frame-ups, attacks and persecution in various



Chinese students make their way home from Canton

degrees while their families also suffered because of guilt by association. It is an appalling catastrophe suffered by our people."

There is no doubt that the excesses of the cultural revolution and the disruption of formal education during this period resulted in serious damage to education at all levels. The effect is marked in the case of intellectuals between the ages of about 25 and 35, who had varying degrees of interruption to their secondary and tertiary studies. Even more pressing is the situation of middle-aged intellectuals, those between 35 and 55, who graduated from university after the founding of New China. Numbering about five million, they are the core force in teaching and scientific research. For example, 80 per cent of those actually teaching in the universities of the south-west are in this age group.

Prejudice against intellectuals during the cultural revolution prevented them being given pay rises, most have parents as well as children to support, and with household chores, poor living conditions and heavy workloads their general health is not good. For years they had little opportunity for advanced study and this of course affects not only their research but also the quality of their teaching. Elderly intellectuals, who head all the institutions of higher learning that I have visited in the last two years, fare rather better. Freer from domestic responsibilities and with fewer personal needs, they are cheerful, intellectually vigorous and surprisingly free from bitterness at their past treatment.

How influential are intellectuals today? And who are they? The term *zhishi fenzi*, learned people, is broader than its usage in the West. It applies not only to academics but also to scientists, senior engineers and writers, technocrats in factories, all teachers and "other mental workers with professional knowledge". There are 25 million of these, and of course only a small proportion are engaged in the kind of creative thinking which can, in A. H. Halsey's phrase, "more the

Certainly, to take just one example, the Gezhoube Dam project on the Yangtze, China's largest water control

and hydroelectric project to date, could be conceived initially only by intellectuals of the highest order. But the Chinese would consider many of the 50,000 technicians and workers engaged on this immense and complex project to be true intellectuals.

What is certain is that any kind of creative thinking must take place in accordance with the broad lines of Party policy. "In the tradition of liberal thought," wrote Halsey in these columns, "the primary concern has been with freedom of inquiry." In Marxist thought the primary concern is to "serve the people" in the great campaign to achieve socialist modernization by the year 2000. And in this campaign the Party considers intellectuals to be of crucial importance.

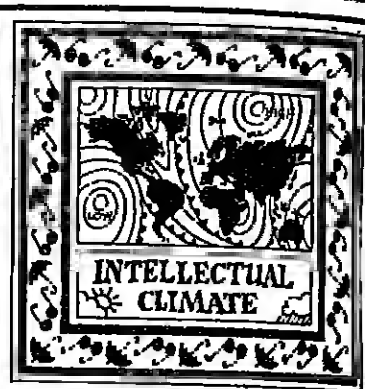
Over the past two or three years there have been many articles stressing their vital role. Speaking last month on the centenary of the death of Karl Marx, Hu Yaobang, general secretary of the Communist Party, said: "We must respect and rely on the intellectuals as much as we rely on the workers and peasants in the great cause of socialist construction." It was "an essential condition for mental labour that those who engage in it... should receive more material remuneration than those who do manual labour."

And that this would encourage the children of workers and peasants to seek education and study science, thus swelling the ranks of intellectuals. In fact, only integration with the people as a whole can eliminate the age-old distrust of intellectuals by peasants in particular - 80 per cent of the population - and enable them to play a full part in China's development. Party and government officials constantly urge this integration. The 1982 constitution states: "The workers, peasants and intellectuals constitute the basic social force in our socialist construction." Hu Yaobang said that it was imperative to oppose the erroneous tendency of separating intellectuals from the working class; they were a part of the working class and the unity between workers and peasants on the one hand and intellectuals on the other should be strengthened a hundredfold.

Sustained efforts will be needed to ensure the implementation of Party policy before intellectuals are treated as equals by workers and peasants. But in spite of their recent experience, those with whom I have discussed education are confident that their professional and material conditions will improve in step with the economy.

Within the limits of Party policy adopted since the fall of the Gang of Four in 1976 they are free to criticize; and even to a foreigner they are highly critical of the examination system for entrance to higher education, streamlining and the changes of key (privileged) schools to name but three examples. They discuss weaknesses and shortcomings of the educational system with frankness. Their openness gives an impression of modest confidence, both in the future of their country and in their personal role.

They do not expect rapid improvements: the Chinese have always taken the long view. But in no other country does the intelligentsia consist almost exclusively of working-class men and women. It may be that one of the world's oldest civilizations will be the first to achieve a full integration of workers, peasants and intellectuals.



Students take home thoughts from abroad

Chinese students are studying abroad in larger numbers than ever before, in an effort to catch up with the West and encourage rapid modernization, thousands of students are leaving China to study in the United States and Europe. According to Chinese embassy figures there are more than 600 students from the People's Republic in the United Kingdom alone, compared with only a handful before 1976. Worldwide, more than 5,000 students were sent to 46 countries to study in the years 1978/80.

In response to this development the teaching of language within China has been intensified. On a trip to London from Canton to Peking we met a group of young men and women returning from a year's crash course in German prior to leaving for Vienna and Nuremberg to study.

At the Institute of Foreign Languages in Peking I had dinner with a class of students studying English to preparation for courses at universities in the United States. Their subjects were nearly all technological or scientific, ranging from space science to chemistry.

The standard of English among the students I met varied from very fluent to rather halting and uncertain. An Englishwoman teaching at the Institute of Languages told me that the level of oral comprehension was lower than that of reading and writing. However, Sblin, an education student destined for the American mid-west, told me that the greatest difficulty was the unfamiliarity of the Western alphabet.

Many of the Chinese students now studying abroad are older than their Western counterparts. The Cultural Revolution from 1966 to 1976 disrupted the education of a whole generation of young people and this was reflected in the experience of those I met.

A young man who befriended me and showed me round the maze of small lanes that form the backstreets of Peking told me that Red Guards at his high school denounced him because both his parents were academics. He worked for seven years as a turner in a factory before resuming his studies in his late twenties.

Student attitudes to education abroad reflect China's traditions as well as her recent past. Traditional Confucian respect for education as a means of advancement survived the Cultural Revolution and Mao's contempt for expertise and mistrust of education. In his view, as he said in 1966, "Too much study can kill people." He himself rejected opportunities to study abroad in favour of staying in contact with ordinary Chinese. His beliefs led to the closure of colleges and universities and to the rustication of 17 million urban young people.

At the present time, which some commentators describe as a period of apathy and disillusionment, the dream of study abroad remains a powerful motivating factor for which young people are prepared to make considerable sacrifices. My guide in Peking, for example, will be separated from his young wife for the duration of his three-year course in Vienna.

At the same time, Chinese tertiary institutions have opened up to academic contact with the West. In 1980, 926 foreign lecturers taught in Chinese colleges and universities on a short or long-term basis. Over 50 universities have had academic exchanges with universities abroad and 30 have entered into contracts for student exchanges. In keeping with the present climate young Chinese students feel safer than they have done in the past in speaking to their growing number of foreign experts and tourists in China.

Rob Damon

After the revolution

China is one of the few countries that retain the attraction of an unknown and even slightly mysterious land. So when my wife and I were invited by the Chinese Ministry of Culture to visit China to look at their arts and education, we accepted readily.

I particularly wanted to see how a vast country of 1,000 million people, 80 per cent of them peasants, went about the business of making the arts available outside the charmed circle of cultural elite. My wife, an Open University tutor, had a similar interest in their educational system.

True, since the Cultural Revolution ended in 1976, a gradual opening-up, a liberalization, has been taking place; but it is still the case that only a tiny number of Chinese are given the opportunity to travel abroad, and that even within their own country, very few are able to visit areas outside their own immediate locality. Students at a teachers' training college that we visited in one of the smaller towns, Guilin, are drawn from the locality, study in the locality, and will eventually teach in the locality. One or two of the better students are occasionally taken on a tour of another province, but for the rest the horizon is very limited.

Perhaps partly for this reason we found, wherever we went, people of all types eagerly learning English, and making cheerfully unabashed efforts to speak it to us and to the groups of (mainly American and Australian) tourists now found in many parts of the country.

The learning of English is officially fostered by the government through an excellent television programme which the BBC originated. We visited a chemical factory which included English lessons in its strictly vocational workers' education programme. However, in this as in many spheres liberalization trends a nervous path, and one young Chinese workman who walked along with us one evening practising his English was sharply warned off by two figures, presumably police, who emerged from the shadow of the trees, and together with whom he vanished into the dark.

If the Chinese do have a perspective on themselves and on their problems, it is not so much through contact with other cultures (although they have far more experience of Western culture within China than we have of Chinese culture within the UK), as through the perspective of their own history. One young educated woman, now in her twenties, who was 10 at the onset of the Cultural Revolution, and whose family had suffered great hardship, explained to us: "My generation matured very quickly: we experienced so much in such a short space."

The Cultural Revolution, described by people we met as "the turmoil", has forced contemporary China to look again at its own culture, both in the present and the past, and to rediscover what is of value. And a country whose written history goes back at least 3,500 years, and whose earliest settlement so far discovered is 6,000 years old, with remnants of pottery decorated with elegant abstract fish designs has much in its past to cherish, as well as to understand and to criticize.

During the 10 years of the Cultural Revolution, which ended in 1976, artists, educators and administrators were sent to the communes to work on the land or to factories. Artistic and educational training almost came to a standstill, cultural institutions and historical buildings were closed and sometimes desecrated, libraries were lost.

The director of the famous Shanghai Music Conservatoire described to us how his library staff hid the music manuscripts and how he himself spent much time hidden in a stair-well. Not even music, the least controversial of arts, escaped. Every educated person we met had been displaced, often in recalling with much irony how during the 1960s I heard a left-wing English professor of sociology extolling the virtues of the Cultural Revolution.

The Chinese are now engaged on a determined and energetic programme of rebuilding their cultural institutions. Quilting for every single building structure; but also in less tangible ways, for the 10 years of turmoil meant that a whole generation in education and the arts is missing - ballet dancers, for instance, are either very young or a little too old; while in the musical

factory we were told that special help had to be given to the generation which had missed out on education.

To help accelerate the desired Chinese renaissance of arts and education, a sensible programme of borrowing key figures from the West is under way: so we came across an Englishwoman working with the Peking Central Ballet and an Italian working with the Peking Central Opera Company, both of which work in Western styles. Arnold Wesker had just spent a month working with Chinese professors of English, gathered in Peking; two people from Glyndebourne are next spring scheduled to coach the Peking Central Opera Company (who so far have restricted themselves to romantic opera) on the singing of Mozart.

The ferocity of the Cultural Revolution seems explicable only against the background of centuries in which feudal power and intellectual distinction were united in the oppression of the majority. In feudal China (which was only finally abolished this century and some of whose attitudes are consequently still around) the "number one scholar" was so revered that he might marry the Emperor's daughter - you can still visit the room in the Imperial Palace where the final examination which conferred this honour took place.

In Xi'an, a cotton town the size of Birmingham, we saw their second local opera company perform a very professional and beautifully mounted local opera, *The Night Watchman*, which told the story of a scholar whose pride in becoming the number one scholar led him to reject his wife (a famous army captain) and their child. The happy ending could not be reached until he had suffered the complete humiliation of gradual down-grading to the most menial task of nightwatchman in his wife's army. The opera, written in the 1950s and based on an old story, was much enjoyed by a large audience of mainly male working people, who found the humiliation of the scholar vastly amusing, especially at the point when he had to kneel to his own son. Written before the Cultural Revolution, its story foreshadowed the "turmoil", and, if current newspaper reports of attacks on teachers by peasants are to be believed, it taps a feeling which is still very much abroad.

Success in Chinese intellectual life seems still very much dominated by the examination. Admission to university, college, or the three-year-old science-oriented Television University is strictly by examination. The "openness" of admission without entrance qualifications, of our own Open University, clearly astonished the Chinese Television officials, and the professors at the teachers' training college seemed to find our complicated admission procedures rather quaint. Theirs, on the strength of exam results alone, meant that only 30 per cent of their students were women.

From nursery to postgraduate level, it seems that the teacher expounds and the pupils take note. This style, one felt, was possibly nowadays more a question of tradition than of dogma.

A young university teacher we met who had had a British Council scholarship to do an MEd at the Institute of Education in London described the shock of arriving there, being given a list of books, and after a short chat with her tutor, being left to get on with it. After a time, wondering, she came to value this approach, and is now attempting, against much resistance, to encourage similar independent learning among her postgraduate students.

In all the main centres in China that we visited, the arts appear to flourish. The Central Opera Company in Peking sells out a 3,000 seat theatre for 200 performances a year of modern Chinese and Western operas (*Carmen*, *Onegin*, *Butterfly*, *Traviata*, *Bohème*, for example). This is doubtless helped by the fact that the seats cost the equivalent of 30 pence! (Even allowing for the low incomes in China, I reckon this to be no more than the equivalent of £1.50 here.) Other companies, equally well-attended, perform traditional operas, dance-dramas, classical and

Roy Shaw looks at arts, education and the people in China

modern plays and, of course acrobatics - a sadly neglected aspect of popular culture in Britain.

The performances we saw were well-dressed, with colourful and imaginative sets which were less expensive and far more quickly changed than those we are used to. Intervals in the Chinese theatre seem minimal or non-existent, as is the applause. Musical standards were good, and at all opera performances the text was projected on panels at either side of the proscenium. I have often wondered whether we should not do something like this though opera purists would undoubtedly object.

In classical instrumental music, both Western and traditional, the Chinese excel as performers; but on hotel radios we heard much of what must be the equivalent of our pop music, as well as a good many songs which sounded like Chinese versions of "Pale Hands I Love, Beside the Shalimar". And despite all the fine crafts that the Chinese practise, the working man's flat which we visited in Shanghai contained the same kind of decorative mass-produced objects which one might find in the West, as well as two television sets - one in each of the two tiny rooms which housed an old couple, their married son, daughter-in-law and grandson.

Just how far the live arts reached the population at large we found very hard to judge. The audiences at the popular opera in Xi'an certainly did not look like members of a cultural elite; on the other hand, in Peking, Shanghai, and Guilin, the audiences seemed much more to comprise a mixture of educated Chinese and Westerners.

In the arts, as in education, the cultural heritage exerts a powerful influence in China, despite the hiatus of the Cultural Revolution. Arnold Wesker, in a lecture in Peking, had impressed the man from the Ministry of Culture who accompanied us throughout our tour with the comment, in reference to the difficulties of contemporary playwrights in the UK, that Shakespeare was in some ways a milestone round their necks. So, our man implied, might the cultural heritage be to the arts in modern China.

Certainly what we saw of fine art in China tended to support this view. At the Institute of Fine Art in Peking we saw only professors' works reproducing yet again the ideas of classical Chinese art of centuries past, together with students' New Year paintings (a popular and limited art form) and crude engravings for illustrated versions of classics by people like Dickens and Victor Hugo. Yes, we were told, some artists had tried to break the mould with new styles, but "this was not popular with the public". Only in the West, where there are wealthy private patrons, they suggested, could artists indulge in unpopular styles.

Muralists and sculptors from the school could only find employment on government projects because of the large scale on which they work. The primitive peasant paintings from rural areas which have been admired by some in the West are equally produced "to order", being used by the government as propaganda posters, while the painters themselves receive some training at the government's expense.

If what we saw of fine art was disappointing, our visit to the Conservatoire of Traditional Music and Peking gave us an insight into the excitement which could be generated when traditional forms are combined with new ideas and influences. We heard vibrant new compositions and arrangements performed on strange instruments, in which the old and the new were united to splendid effect, in music that made such transitions. The Central Ballet Company in Peking, equally, was attempting to cross-fertilize traditional and Western styles in ballet.

Most of the arts administrators whom we met, inhibited no doubt by the continuous presence of a man from



Chinese acrobatics: a form of popular culture neglected in Britain

the ministry, avowed that the state gave them all the money they needed for the arts. The one arts administrator who talked frankly about the difficulties of his job admitted that public demand, notoriously conservative everywhere, determined what should be encouraged. (Interestingly, this would be the same in a wholly profit-based arts situation too, with the difference that the constituency of "the public" would be limited by income.)

The large provincial performing companies of all kinds were well-funded by the government, he said, but smaller local groups had to get by on their own resources, although box-office prices would be guaranteed. Writers, artists and composers were given a basic wage when it was considered that their work was valued and met a need; but this administrator confessed to a problem we share, that it is much easier to take clients on than to drop them if they fail to work satisfactorily.

The problem of combining economic security with maximization of effort has been tackled in all walks of life by combining a guaranteed basic wage with extra awards based on a points system. Our official driver, for instance, was awarded points according to the quality of his driving, his "right thinking", and his petrol consumption! Such a system implies much dependence on the judgment of the "centre" (bureaucrats) who enters up his points, and very much form-filling too.

To operate such inducements in the world of the arts must be difficult and dangerous, encouraging playing-safe conservatism. We had the impression that criticism of practical activities or of not-too-highly-placed bureaucrats was permitted through the arts, but any questioning of government policies or of basic political beliefs was not. A speaker at the party congress while we were in Peking said that people should be promoted "according to their revolutionary spirit" as well as competence, and called, interestingly, for education to convince intellectuals of "the correctness of the Party's basic principles".

A surprising aspect of revolutionary spirit was the disapproval of romantic love - a point made in David Bonvin's excellent portrait of *The Chinese*. One letter in the press while we were there asked that less space be given to relationships between men and women, and more to politics, economics and technology. Another complained that films had too much romance in them. The objection was not to sex, but to such scandalous activities as lovers "chasing and kissing each other". This does not mean that Mr. Whitehouse would be welcome in China, where the motivation is political rather than religious. (But perhaps the continuous presence of a man from

of religion?) Of the Chinese whom we met, the educationist, and especially the people from the Television University, seemed eager to know how we organized things in our own institutions. The arts administrators, in contrast, showed little curiosity about our funding of the arts, and the artists we met seemed far more anxious to introduce us to their activities than to learn about ours; this lack of curiosity may arise because they believe they know about the West, where people are fully motivated by the profit motive.

The people at the Institute of Fine Art never even considered the possibility that some Western artists might carry on working in unpopular ways even if it meant hardship and poverty - they assumed that such deviations must be backed by big business. Similarly, when we tried to discuss with a ballet group in Shanghai the difficulty of extending arts audiences to embrace factory workers and peasants, they solemnly assured us that we had this problem because our artists only performed for profit, whereas theirs performed to delight their audiences!

China is a country with huge economic and political problems, which its people are tackling with an energy and intelligence which one can only admire. At the Shanghai Music Conservatoire, famous for its remarkable achievements, when they young instrumentalists found they could not afford the necessary instruments, they turned a corner of the building over to their manufacture, and now even sell some of the harps, violins, etc. which they produce.

In the same spirit, every inch of the country is intensively farmed, every scrap of produce is imaginatively used; so everyone has a roof over their head, and no one starves or begs. In addition, arts and industry are extended to many spheres of life - to cooking, to public gardens, to children's and interestingly to adults' clothing. Given the enormity of their economic task, the arts, not only of China but of Western arts, too, are fostered to a remarkable degree.

The British Council hopes our visit will lead to an increased exchange of artists and educators of all kinds. Indeed, a high-powered group of Chinese experts concerned with arts and education has recently come to this country. We have much to learn from them about popularizing the arts, while they have much to learn from us about educational methods. There is some value in us telling them about the values of free exploration and independent study, but it is limited. As the Chinese lecturer's experience showed, study in this country is the most effective way of demonstrating the value of our approach to education.

The author is outgoing secretary-general of the Arts Council of Great Britain.

Looking and learning to the future

China's political leaders are seriously concerned at the inadequacy of higher education to provide enough qualified intellectuals to serve economic and cultural construction. The number of full-time universities and colleges increased from 203 in 1949 to 598 in 1978, and now stands at over 700. But the 1.35 million students - about 11 for every 10,000 of the population - constitute a far smaller proportion than in developed countries, and even a smaller proportion than in some developing countries. This falls far short of the requirements of China's economic development.

Various measures are proposed to improve the situation. The sixth Five Year Plan (1981/85) provides for an increase in university entrants from 380,000 in 1980 to 400,000 in 1985 - a mammoth 42 per cent rise. The Ministry of Education predicts that by 1990 universities will admit over 600,000 annually, rising the total roll to about two million.

Postgraduate education is expected to develop along similar lines, from 11,000 enrolled in 1981 to a proposed 20,000 in 1985. University courses are under review, and the Ministry is pressing for an increase in the proportion of finance, management, political science, law and liberal arts courses, and also subjects related to textile and other light industries.

Other forms of higher education are being developed -

workers' full and spare-time colleges attached to and run by factories, peasants' "universities", television and radio universities and correspondence courses. These cater for adults, especially those whose education was interrupted during the cultural revolution, and for the secondary school-leavers who are capable of following higher education courses.

It is proposed also to develop short-term vocational colleges, enrolling day students for two-year courses. The recent policy of encouraging business and commercial initiative, especially in medium-sized cities, has led to an urgent demand for people with middle-level professional skills. These colleges will be administered directly by the cities.

The Ministry of Education is even encouraging the establishment of private schools, and has recently set up a national examination committee which administers nationwide tests for graduates from schools run by units (factories, stores, etc.) without licence from the Ministry and certifies their graduates if their exam scores are up to the required standard.

The sixth Five Year Plan provides for 15.9 per cent of the state's total expenditure to be devoted to education, science, public health and culture, a 4.9 per cent increase over the previous plan. But the main problem in these impressive development plans must be the provision of large numbers of qualified teaching staff.

Peter Woodward does some scientific crystal-gazing and looks at the benefits to chemistry of

The fascination of crystals is evident to everyone: their beautiful geometrical shapes, their ability to refract light, their colour range from water clarity to one end ("crystal clear") to jet black at the other, with every conceivable colour in between. So immediate is their aesthetic appeal that from earliest times women and men have decorated their bodies with gemstones - highly durable, hard, refractive - and usually rare - crystals.

The fact that many geological materials are naturally crystalline made it inevitable that the science of crystal morphology should have been first developed mainly by geologists. Crystallinity is a natural state for chemically pure materials, so that the world of the synthetic chemist is that of non-crystalline substances. In this sense it contrasts sharply with the world of the biologist, where even the simplest life forms are non-homogeneous structures of enormous complexity.

In the seventeenth century it was known that crystals of any pure material have an important quality in common, even though individual crystals appear to differ from one another. This is that the angles between corresponding crystal faces are invariant, whatever the relative sizes of the faces (and these usually vary because of accidents of crystal growth). It is thus possible to envisage an idealized crystal shape for every pure substance - a kind of faceted sphere in which all the natural angular relationships are displayed in an undistorted form.

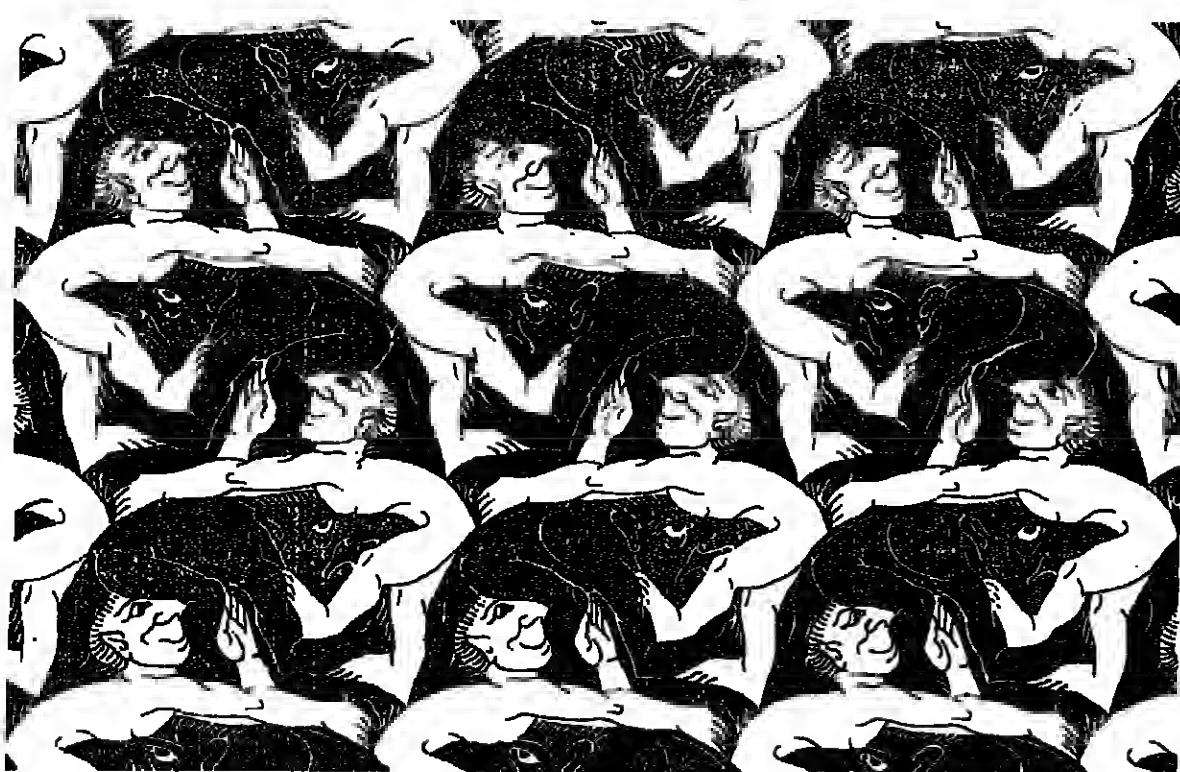
Crystals are classified scientifically by their symmetry. An object is said to have an axis of n -fold symmetry if it presents the same appearance n times while being rotated once around its symmetry axis. As everyday examples, tennis racquets and books (ignoring the printed text) have an axis of two-fold symmetry; many church towers have an axis of four-fold symmetry; nuts and bolts have axes of six-fold symmetry and, consistently, objects with no symmetry at all, like grand pianos or single gloves, are described technically as having axes of one-fold symmetry. Of course, objects may have several kinds of symmetry in combination simultaneously. A cube, for example, has four-fold symmetry in three orthogonal directions as well as three-fold symmetry in all four diagonal directions.

It is surprising at first to discover that crystals are extremely limited in the symmetries they can possess: only one, two, three, four and six-fold axes are found, and the number of unique combinations of these symmetry elements is only 32. Every known crystal, though it may be unique in its shape, belongs to one of the 32 crystal classes, and crystals never display other orders of symmetry (eg. never five or seven-fold axes). In this respect, crystals are not like molecules which can possess almost any conceivable symmetry.

The implications of the rigorous limitations on crystal symmetry were inferred long before anything was known with certainty about the internal chemical structure of crystals; indeed, by the end of the nineteenth century it had been deduced that the external symmetry of crystals must be a consequence of the internal symmetry of the three-dimensional packing of the chemical constituents. Moreover, a pattern which repeats (and an easy everyday parallel in two dimensions is offered by fabrics and wallpaper) must, for an infinite pattern, have an infinite number of symmetry axes, and these must repeat at least as often as the pattern itself repeats.

From any three-dimensional pattern, it is possible to abstract an array of points which all have exactly the same environment in the pattern. This array of points is technically called the crystal lattice; if we know the lattice we know the spacing and the symmetry class of the overall pattern.

But because all lattice points are identical (ie. indistinguishable) any symmetry operation may involve not merely rotation around one point but a combination of rotation plus translation to a neighbouring identical point so that, for example, a crystal which has external three-fold symmetry may have atoms or molecules arranged internally every symmetry axis or in a "honeycomb" arrangement such that the pitch of the helix is equal to the



"Many of M. C. Escher's drawings mimic the structured patterns of crystals. Taken from *Symmetry Aspects of M. C. Escher's Periodic Drawings*, published in 1965 by A Oosthoek of Utrecht, with text by Professor Caroline MacGillivray.

Rays and means of diffraction

distance between adjacent lattice points.

During the nineteenth century, mathematicians had deduced that there are 230 unique combinations of the permitted internal symmetry elements (the "Space Groups"); these are delineated and beautifully illustrated in the first volume of the *International Tables for X-ray Crystallography*, a work whose visual and intellectual delights are comparable with the aural delights of a Mozart string quartet. The Dutch artist Maurits Escher has created many delightful patterns which illustrate the two-dimensional space groups; one of his patterns is reproduced above. Strangely, both crystals and artists share a strong preference for patterns with translational symmetry.

Early in this century, investigations were also into the nature of the newly discovered "X-rays". Ever since the seventeenth century it had been known that visible light could be envisaged as a wave motion because of the extraordinary phenomenon of diffraction (whereby, if a beam of light is directed at a grating, ie. a series of parallel lines ruled on transparent film, say) it produces an image of alternate dark and light regions, the spacing of which varies inversely with the spacing of the lines in the grating.

The ability to add light to light and obtain darkness can be understood only if light is in some sense wave-like and scattered rays are superimposed when exactly "out of phase". If, as was believed, X-rays are similar to visible light but have much shorter wavelength, then maybe they too should show diffraction from a grating of suitable fineness. Might it be that the spacings of a crystal lattice were of the right dimensions to diffract X-rays?

The crucial experiments were performed just before the First World War, and their importance can be judged from the fact that the Nobel Prize for 1914 was awarded to M. von Laue for his discovery of the diffraction of X-rays by crystals, and for 1915 jointly to W. H. Bragg and W. L. Bragg for their analysis of crystal structure by means of X-rays. It was established that crystals do indeed diffract X-rays; from which it follows that X-rays must be waves of very short wavelength and that if we could produce X-radiation of known wavelength we could use it to measure the lattice spacing of crystals.

The science of "X-ray crystallography" (as current jargon names it) developed directly from the early diffraction experiments. X-rays are generated by bombardment of a metal target with a beam of electrons. The wavelength of the X-rays is determined by the chemical nature of the metal used as target. Two commonly-used metals are molybdenum and copper

which generate X-rays of wavelength 0.7107 and 1.5418 x 10⁻¹⁰ m respectively (in other words about one ten thousand millionth of a metre). When a crystal is rotated in such a beam of X-rays, the diffracted rays so produced can be recorded on photographic film; the film shows a pattern of black spots. From the symmetry and spacing of the diffraction patterns obtained from a crystal it is possible to deduce directly the symmetry and spacing of the crystal lattice.

Now, most patterns consist of recognizable motifs which repeat (often with inversion or reflection), but it should be emphasized that crystal symmetry is determined by the symmetry of the overall pattern, not that of the motif. In a crystal, there is usually only one motif and this is commonly a molecule (a group of atoms chemically bonded together to form a unique chemical species). Such molecules pack together relatively loosely, but efficiently, to form three-dimensional arrays. If, by means of X-rays, we could reconstruct the content of one repeat unit of the pattern (ie. the content of the parallel-sided box or "unit cell" obtained by joining eight neighbouring lattice points) we should then have detailed knowledge of the entire internal structure of the crystal.

If we consider the diffraction phenomenon in more detail, it soon becomes clear that the amplitude, and hence the intensity, of each diffracted beam must be determined by the location of the atoms within the unit cell. Each atom in the structure consists of a nucleus and a diffuse cloud of electrons, and it is the electrons which scatter the X-rays; the amplitude of the scattered ray depends on the atom, such that "heavy" atoms containing many electrons scatter much more effectively than "light" ones.

Now, a diffracted beam is produced when the rays scattered by any one atom differs in phase from the ray scattered by the corresponding (indistinguishable) atom in the next unit cell (as a whole number of wavelengths. But consider: it is then evident that the ray scattered by any atom in between the other two must be a fraction of a wavelength out of phase, the fraction depending on the relative position.

This in turn must affect both the intensity and the phase of the diffracted beam. And here we come to the central problem, which is that although we can measure wave amplitudes (as the square root of the intensity), with ordinary laboratory equipment we cannot measure phases. If we could, it would be possible to "re-synthesize" the structure directly from its diffraction pattern; as it is, we have to arrive at the phases by other routes.

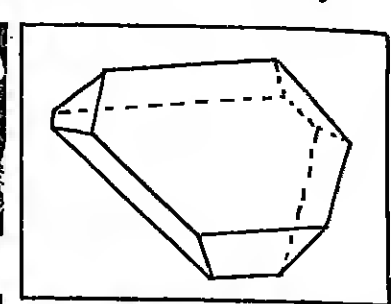
How that is done would take too long to describe in an article of this kind, and is in any case rather technical,

but much of the practical excitement of determining crystal structures turns on how the phase problem can be solved in any particular instance. Once this is done, the atoms can be located through computation of electron density "maps", and all the detailed geometry of the structure is then revealed.

In recent years, so-called "direct" methods of determining phases have been developed which depend on mathematical studies of the statistical distribution of all the measured diffracted intensities. Such methods, and indeed all the processes of crystal structure determination, readily lend themselves to computerization, so that in favourable circumstances the structure elucidation can become an entirely automatic procedure (but much less fun!). With modern equipment it is possible to mount a crystal on a computer-controlled diffractometer and programme the machine to measure the lattice dimensions and then the intensities of all the diffracted beams (which for a typical organic molecule can number in the thousands). These data are then fed into a computer which, using sophisticated programmes, will evaluate all the phase relationships and then use them to re-synthesize, by calculation, the original structure. A computer-controlled graph plotter will then draw out the molecular structure. The whole process can be completed in a matter of hours or days rather than weeks.

It must be emphasized, however, that the accuracy of the final crystal structure is very dependent on the accuracy with which the diffracted intensities are measured; for structures in which details of molecular geometry are required to a high degree of accuracy, data collection must take several days, but a molecular configuration (sometimes all that is required) may be obtained from data collected much more rapidly. A decade ago, the computations required would have had to be performed on a main-frame computer housed in a special building; today the computer needed is about the size of a household refrigerator and is housed in the crystallographic laboratory.

In characterizing new chemical species with unpredictable and unexplored structures, crystallography is an invaluable tool. Clearly, research in chemistry concerned with synthesis of new compounds can benefit vitally from a technique such as this. One area of synthetic research which has seen a world-wide explosion of interest in the last three decades is that of metal-organic chemistry, ie. the chemistry of compounds in which metal atoms are bonded to organic moieties; (the word



Alum crystal as commonly grown

"organometallic" is reserved for those compounds in which the attachment is specifically between the metal and a carbon atom). To this area, X-ray crystallography has contributed enormously.

A few organometallic compounds have been known since the early nineteenth century, notably Zeise's salt (1827) now known to be $K_2[PtCl_6] \cdot H_2O$, cacodyl (1842) $(CH_3)_3AsAs(CH_3)_3$, the zinc alkyls (1849) eg. $[Zn(C_2H_5)_2]$, tetracarbonylnickel (1890) $[Ni(CO)_4]$, and the so-called Grignard reagents (1900) eg. $[CH_3MgBr]$. The compound $[Ni(CO)_4]$ is particularly interesting because the CO ligand has played a very important role in the subsequent development of organometallic chemistry.

Atoms consist of (1), a nucleus comprising protons and neutrons (the number of protons, or "atomic number", determining the chemical nature of the atom) and (2), a diffuse outer structure of electrons in which, however, the electrons are grouped into "closed" or chemically inert shells of 2, 8, 18, ... 2n² electrons, the outermost (chemically active) shells often being incomplete.

Atoms combine chemically either by the interchange or the "sharing" of electrons; if each of two atoms A and B contribute one electron to form a normal two-electron bond, then the configurations of the outermost shells of both A and B increase by one electron. Sometimes, if B is a good electron donor and already has a 2n² configuration, it may contribute both of the electrons required for the bond: A increases by two and B by zero.

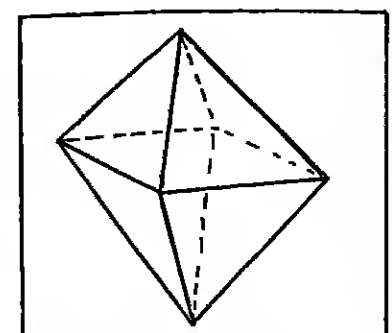
In the compound $[Ni(CO)_4]$ the metallic Ni atom starts with 10 outer electrons and each CO molecule carries two electrons of the C atom. If four molecules of CO each contribute two electrons to a central Ni atom to make a tetrahedral molecule, the Ni configuration increases from 10 to 18 and is one of the stable configurations. The Ni atom has contributed nothing, in terms of electron counting at least, and so could be described as zero-valent. Much of modern organometallic chemistry is the chemistry of low valence elements.

The discovery of ferrocene (dicyclopentadienyl iron) in 1951 hit the world of chemistry with the force of an earthquake. Once the structure of this compound had been established beyond all doubt (by X-ray crystallography) ferrocene research programmes were launched, not only to study its chemical reactions (organic and inorganic) but also to try and synthesize other similar new molecules.

Ferrocene's beautiful orange crystals comprise molecules in which two parallel pentagonal ring-systems (C_5H_5), in a staggered conformation, enclose an iron atom to make a chemical sandwich. The rings, which have ordinary C-H and C-C chemical bonds within themselves, are bonded to the iron atom by a hitherto unidentified mode of "sideways interaction" between the existing bonds of the rings and the iron atom itself.

There can be little doubt that for the pure scientist the interest of organometallic chemistry lies predominantly in the possibility of discovering new modes of chemical bonding and, by implication, new kinds of chemical behaviour; also, of course, the need for new theories to interpret, to understand and to develop even further this new chemistry. Among the most exciting developments of the last thirty years, the following may be mentioned. First, an increasing realization of the enormous variety of organic species which can be bonded to metals, and the marked dependence of the properties of the compounds so produced on the nature of the metal atom.

new techniques



Idealized alum crystal

Second, organometallic complexes often have structures in the solid state (X-ray crystal structures) which appear to differ from those deduced in solution by spectroscopic methods. For example, the cyclo-octatetraene complex $[C_8H_8]Fe(CO)_5$ has a crystal structure which shows that the C_8H_8 ring is non-planar and that only four of the carbon atoms are directly bonded to the iron atom (as required by electron counting: Fe starts with eight, three CO contribute six, so Fe needs another four to reach 18); but the technique of proton magnetic resonance, which "sees" how many different environments there are for the H atoms, shows that they are all indistinguishable.

It is concluded that in solution the iron atom must shift around the ring at such a speed that the H atoms appear to be equivalent. Indeed, at lower temperatures (around 150°C) the spectrum becomes more complex as the hopping slows down. Such molecules are said to be stereochemically non-rigid. Third, large numbers of organometallic molecules have now been synthesized in which metal atoms are bonded to one another to form clusters of two, three, four, five, six or more atoms, usually in the form of three-dimensional polyhedra.

Organic ligands complete the valency requirements of the metal atoms, but it is evident that early notions of 2-electron bonds between atoms are wholly inadequate to describe metal cluster complexes. The bonding capacity is "spread out" over the whole molecule so that the bonds are delocalized. Fourth, organic molecules which are not capable of independent existence can often be stabilized by attachment to a metal atom. For example, the ring system C_6H_6 does not exist independently, but can be stabilized by attachment to a $Fe(CO)_5$ moiety. Fifth, many organometallic reactions have been studied in intense detail to try to elucidate the mechanisms by which they take place; much success is being achieved. Sixth, catalytic aspects are of ever increasing importance.

To the general public, the best known organometallic compound is probably tetra-ethyl-lead because of its use as an additive to petrol and the unfavourable publicity it attracts, though it should be remembered that the biologically important haemoglobin, vitamin B₁₂ and chlorophyll are also metal-organic complexes of iron, cobalt and magnesium, respectively.

Industrial applications have sprung widely from the use of organometallic compounds as catalysts. Many are in use for production of organic chemicals from hydrocarbons or from "syngas" (CO + H₂, obtainable from carbon and water), for polymerization processes (polythene is the best known product); and of course the search for new sources of energy (hydrogen from water?) will certainly involve organometallic chemistry.

There have also been pharmacological applications; for example, some platinum complexes are good anticancer agents, some gold complexes are used in the treatment of rheumatoid arthritis, some copper complexes are good anti-inflammatory agents, and a good lithium complex which gave slow release of lithium would be a boon in the treatment of manic depressive illness.

The field is an exciting and fast-developing one, and the problems raised for chemistry are so fundamental in nature that interest is bound to remain high; X-ray crystallography will inevitably continue to play a crucial role. The last two decades have certainly seen a wonderful era in which to have worked.

The author is Reader in Chemical Crystallography in the Department of Inorganic Chemistry, University of Bristol.

During his presidential election campaign two years ago, François Mitterrand outlined a grandiose strategy for science and technology in France that was to be implemented when he was elected. Many observers both in France and overseas were sceptical. Those from Britain saw it as an echo of the 1964 Wilsonian "white heat of the technological revolution" that offered so much and achieved so little. With the whole economic system of the Western world slowing down and the desperate attempts being made across the political spectrum to lighten the load the public purse had to bear, it seemed unlikely that massive extra resources would be directed into research and development (R&D) which so patently, in practice, had been the front of cutting rationalizations elsewhere. While these fears proved unfounded during the reign of Jean-Pierre Chevènement, these have been reawakened by his sudden resignation and replacement by Laurent Fabius, who held a junior post of minister for the budget.

Certainly earlier French experience offered little encouragement. While General De Gaulle had boosted science spending from 1.15 per cent of the gross national product (GNP) in 1959 to 2.2 per cent in 1966 and gave the ministry of scientific research the powers necessary to undertake the independent development of major nuclear and space programmes, these advances were rapidly eroded in subsequent years. Throughout the 1970s the ministry was progressively stripped of all its powers before the "shell" was finally absorbed into the ministry of industry, which was then supposed to represent the needs of science and technology at cabinet level.

Despite the success of France's prestige "shop window" nuclear and space programmes, these merely obscured the collapse of any global policy for scientific and technological development and a consequent steady decline in levels of R&D expenditure. This expenditure was lower, by the end of the 1970s, as a percentage of GNP than any of France's leading industrial rivals. Britain was not to figure in this category, the rivals being America, Japan and West Germany. The percentage of GNP devoted to R&D across a narrow base had fallen by 1981 to 1.8 per cent. It was these trends that Mitterrand promised to reverse.

Despite the potentially crippling economic problems facing the French Socialist-Communist government since its election on May 10, 1981, those initially sceptical of the Mitterrand government's commitment to science and technology had been proved wrong. The reasons for this were multifaceted; one was the personality of the former minister for research and technology, Jean-Pierre Chevènement, but more important is the central role science and technology plays within the analysis of the economy implicitly held by the French socialists.

The reasoning behind this analysis has a number of elements. They believe that wealth flows from knowledge, and that the future economic welfare of small industrialized countries is crucially dependent upon their high technology industries gaining and holding an increased share of the world markets. This strategy requires as a foundation a wide ranging R&D programme based on "state of the art" technology being transformed into commercial products.

This has not happened before for a number of reasons. First, the overconcentration of limited funds on a small number of fashionable and expensive prestige projects to the detriment of other areas. Second, and most important, the failure to ensure that scientific discovery was translated into industrial innovation. Specifically, this is seen as arising from both the indifference of government and academic scientists to real industrial problems and under-investment by French companies in their own R&D with the consequent inability to carry the research coming from government laboratories and elsewhere in industrial application.

Thus science policy in France has been set a number of targets: to bring about a renaissance of French science and technology in neglected areas; to facilitate the successful commercialization of discoveries; to increase private R&D investment; to arrest the decline of industry through technological competition; and in those sectors where this decline is far advanced, to rebuild from the bottom up with indigenous "know-how".

The centrality of the above reasoning

Mitterrand proves the sceptics wrong

Daniel Spagni and Glyn Ford on the 'quiet revolution' in France



Jean-Pierre Chevènement, left, the former French minister for research and technology and his replacement, Laurent Fabius, formerly a junior minister.

ing within French socialist thinking placed a great deal of "political will" behind the plans for science. This has been assisted by one of the cultural facets of the French nation. France has a strong tradition, following the traumas of national defeat in 1941, of independence and self-reliance as evidenced by the *force de frappe*. This enthusiasm for autonomy nearly reinforced the thrust within the plan for science towards national technological independence. The first indications that profound changes were on their way came with the creation of a ministry of state for research and technology. The second was the appointment of Jean-Pierre Chevènement to the post.

Chevènement was a force within the French Socialist Party in his own right, as the leader of the left-wing CERES faction. His own views on the organization of the ministry owed much to his self-confessed admiration for the Japanese ministry of international trade and industry (MITI). The MITI is viewed by many in the West as the hidden dynamo that has driven Japan's high technology industries to be among world leaders. The mystic of the MITI extends even to Japan itself where it is seen as the most powerful ministry within the government.

To mobilize energies and focus national attention, Chevènement decided to inaugurate the government's programme with a series of regional debates within the scientific community, culminating in January last year with a three-day national colloquium on science and technology in which more than 3,000 people took part. The government then converted the results of these *Salons General de Science*, which were contained in more than 200,000 pages of detailed comments into a development programme for science and technology and a new law for science. The law *d'orientation et de programmation* for research and development was adopted by the French Parliament last summer. It outlined a four year R&D budget (1982/85) set to grow in real terms by 17.8 per cent per year to represent by 1985 a target of 2.5 per cent of gross domestic product (GDP).

At the same time the government expects industry to boost its own research budget by 8 per cent per year through to 1985 and to achieve this target it is intended to give a vanguard role to the recently enlarged nationalized sector. Financial support will also be granted to companies increasing their research effort. In November the National Assembly adopted a text authorizing companies to write off against tax 25 per cent of any increase in research expenditure from one fiscal year to the next.

Doubts still exist as to whether the openness and freedom of scientific research can accommodate the degree of industrial secrecy necessary to the

success of a commercial venture in a highly competitive market. In 1975 the first collaborative agreement between CNRS and industry was signed with Rhône-Poulenc, France's premier chemical group. This was sharply criticized at the time by researchers for requiring an excessive secrecy on their part. Now objections are more muted in the face of a clear determination by the government to move strongly in this direction.

These CNRS reforms plus the similar ones at the *Commissariat à l'Energie Atomique* (CEA), responsible for the nuclear programme and those at the *Institut National de la Santé et de la Recherche Médicale* (INSERM), in charge of health and medical research, are all intended to promote this new balance between basic research, applied research and technical innovation. Thus they facilitate the better transfer of knowledge from laboratory to industrial innovation.

Another element of the government's strategy is the way in which it manages the R&D budget. The civil research budget is divided into two parts: one constitutes the funding of the various research organizations (more than £22,000 million for this year), while the other (£10,500 million for this year) is spent directly by the government on a series of strategic areas (*programmes mobilisateurs*) and key technologies (*programmes de développement technologique*). The *programmes mobilisateurs* are designed to mobilize on the lines of national interest the R&D resources of public and industrial laboratories.

The first of these programmes launched in July last year, is intended to promote the development of biotechnologies over the next decade. Clearly results cannot be achieved without heavy and long-term investment. But, in recent years, financial institutions have become reluctant to finance such projects, and so this will now be provided by government.

The French government intends to establish similar programmes in a number of other fields including the rational use of energy and diversification of supplies, research on employment and work conditions, the promotion of French as a scientific language and the spread of scientific culture and the penetration of technology into industry. Similarly, in the field of key technologies (*programmes de développement technologique*) the government announced in October the establishment of a comprehensive programme for the development of electronics and microelectronics and FF140,000 million (£13,500 million) are due to spend in the next five years.

Certainly, science R&D in France has done well. A quiet revolution is taking place. Despite a further general budgetary squeeze in recent months, the research budget is still enjoying the highest growth of all governmental departments, far above the average 12 per cent increase of the French budget. But it is important to maintain some perspective, for despite this massive financial effort, this year's R&D expenditure will only slightly exceed that of just over a decade earlier.

The round-up of research and industry into one ministry in the cabinet reshuffle of last summer, had stirred old fears among some researchers in the past, such as an association has always been detrimental to research with silent transfers of money earmarked for research projects diverted to the nuclear industry (reprocessing of nuclear fuel) or the computer industry (Plan CII Honeywell Bull). Laurent Fabius does seem to accept the general thrust of Chevènement's arguments on the role of scientific research within the French economy, although he is likely to be less controversial and more pragmatic in carrying this programme through.

The French government and public opinion have pinned their hope on research to lead the way out of the recession. One can only watch to see if during bleak times alien, this long-term project can continue to survive against short-term exigencies. If it does, the outcome will be of far more than academic interest in the UK whose problems seem just a more muted version of those facing the French economy.

The authors are members of the programme of policy research in engineering, science and technology in the department of liberal studies in science at Manchester University.

BOOKS

Nature in its place

by John Dixon Hunt

Man and the Natural World: changing attitudes in England 1500-1800
by Keith Thomas
Allen Lane, £14.95
ISBN 0 7139 1227 8

The admission of animals into the kingdom of heaven provides a typical moment of Forsterian irony in *A Passage to India*. In the context of the "bridge party", devoted to bringing together British and native sections of the community on the hallowed territory of the white man's club, the question of allowing monkeys "divine hospitality" is debated between two missionaries:

Old Mr Grayston said No, but young Mr Sorley, who was advanced, said Yes; he saw no reason why monkeys should not have their collateral share of bliss... And the jackals? Jackals were indeed less to Mr Sorley's mind, but he admitted that the mercy of God, being infinite, may well embrace all mammals. And the wasps? He became uneasy during the descent to wasps, and was apt to change the conversation. And oranges, cactus, crystals and mud? and the bacteria inside Mr Sorley?

His dilemma is the subject of Keith Thomas's new book, which traces and seeks to explain the peculiarly modern conflict between the material foundations of society and its sensibilities toward the natural world.

If the Tudor period was characterized by a firm commitment to a view of the world created for man's sake, our modern taste variously for vegetarianism, ecology, conservation and animal rights reveals a wholly different attitude. In Elizabethan England the robin red-breast was esteemed "a light and good meat"; whereas in the 1840s the ex-Governor of Bombay, Mountstuart Elphinstone, was outraged during his travels in Italy at the cooking of small birds ("What! Robins! Our household birds! I would as soon eat a child"). If a cat could be roasted alive inside Ely Cathedral on New Year's Day 1638, by 1776 it was not eccentric to argue that "Pain is pain, whether it be inflicted on man or beast". Even if angling escapes the condemnation of those like Thomas Bewick who found blood sports repugnant, Charles Lamb and Byron both thought it disgusting; and by 1880 the High Court decided that a goldfish is entitled to the law's protection under the Protection of Animals Act (1911). Where once the natural world was apt for shaping, moulding and domination by man or was discussed in terms of human analogies and resemblances, it came to be studied and cherished for its own sake. Osmo, which is today a haven for bird and plant life, was criticized by Arthur Young for being still uncultivated ("a scandal to the national policy"). But an elaborate anthropomorphic tradition, which in 1705 could prompt a physician to claim that the Creator had made the horse's excrement small sweet because He knew that men would often be near it, yielded to a far less rigid scheme, indeed one ridden by endless doubts and hesitations about man's place in nature.

The explicit acceptance of the view that the world does not exist for man alone, writes Keith Thomas in *Man and the Natural World*, "can be fairly regarded as one of the great revolutions in modern western thought, though it is one to which historians have scarcely done justice". His elegant, entertaining and lively study will ensure that historians, among others, do not in future neglect the habits of mind which he chronicles. He charts the erosion of anthropocentric traditions not only or indeed primarily in the high culture of philosophy but as it may be tracked in the mental economy and daily habits of far less articulate people as they confronted the animals, birds, vegetation and physical land-



scapes among which they spent their lives.

The opening chapter sets out the position at the start of the modern period, where the exploitation and subjugation of the natural world - "to make covenants with brute beasts is impossible", said Hobbes - could be shown to have clear biblical authority: what Genesis explained as "the fear of you and the dread of you shall be upon every beast of the earth, and upon every fowl of the air". Even the least acceptable aspects of the natural world were somehow "placed" vis-à-vis man - horseflies, guessed William Byrd in 1728, were created to exercise human ingenuity in guarding against them.

Animals were bred or hunted for meat, clothes and, among other commodities, vellum: some 5,000 calves' skins were needed for the thirty or so copies of the Gutenberg Bible printed in vellum. Increasingly, man sought and gained a power over the vegetable world, just as he cultivated exotics for his garden and sheared his bushes into fantastic topiary. What justified this superiority and lulled any inhibitions about his treatment of other species was man's confidence in his fundamental difference in kind from other forms of life. Yet this same uniqueness promoted much anxiety about forms of behaviour - physical uncleanness, nakedness, unduly long hair, working at night, which threatened the fragile demarcation between man and the animal creation. Close relations with animals were frowned upon (bestiality became a capital offence in 1534), and any human who did not observe the boundaries of his humanity was considered sub-human, semi-animal. Infants, young men unable to control their passions, women were all near the animal state; but still more beast-like were the poor without the skills, gestures, numbers, manners, a sense of time. And to describe a man as a beast was to imply that he should be treated as such.

Yet even in the early part of the period which Thomas studies the "actual practice of many people" was remote from the "official attitudes" canvassed in the preliminary chapter. As that phraseology implies, it is not only the currents of early historical thinking but conventional historiography itself which is called in question as it was in Thomas's first book, *Religion and the Decline of Magic*. It is in fact a fundamental strategy of his historical method and of his rhetorical presentation of material, both in large matters and in local detail, to propose models of thinking against which his own evidence is then set ("Traces of guilt, unease and defensiveness about the treatment of animals"). What in other writers might be a conventional admission of rival perspectives becomes in Thomas a means of arguing his own and especially of demystifying his subjects' ideas - radical, subversive, or simply and strongly alternative.

Various strands of these alternative attitudes towards the natural world, some already latent or in operation in the sixteenth century, others emerging as time went on, occupy the remaining five chapters. Thomas first addresses the growth of natural history, especially the climination of man-given meanings by a closer focus upon the intrinsic qualities of animals and plants which scientific study promoted. Popular parallels between political society and the beehive were challenged, for instance, by the Dutch entomologist Swammerdam who discovered that its head was a Queen not a King bee and who explained its workings by the instincts of nature rather than a moral system of prudence and judgment; "vulgar errors" of popular and sentimental origins, where plants and animals had been accorded a degree of human motive, were equally eroded. New modes of classification often necessitated relinquishing the old man-fashioned viewpoint, and eventually a new nomenclature completed the naturalists' onslaught on the notion that nature was responsive to human affairs.

Actual experience of animals changed during the period studied and brought fresh attitudes towards them; compassion for the brute creation was on the increase. These form the subject of Thomas's next two chapters. The keeping of pets increased among urban middle classes (and Lord Erskine even had his favourite leeches), and it is against that background that Thomas argues we should set the blurring of earlier rigid boundaries between animals and men. Some animals were treated like humans ("metonymical humans" in Lévi-Strauss's phrase); dogs and cats especially became privileged species (Dick Whittington acquired his cat only in the sixteenth century); innumerable anecdotes about animal sagacity arose, and even that last bastion of human difference fell to divines who argued for the future existence of brutes and for their having souls in the true sense. The Bible, inevitably, was found to lend authority on these matters too ("a man hath no preeminence above a beast"). These developments in their turn promoted a new compassion for animals (Thomas's pages on earlier types of cruelty are not for the squeamish).

It is true that cruelty to animals had been condemned early on, though largely for its brutalizing effect on human character, and that we have early examples of sympathy expressed for hunted hares or caged birds. Thomas sees a "much more radical" attitude developing in the modern period, its arguments more secular, even if it was initially ennobled by dissenters. But the size of the natural world was hugely expanded in this period: the Dutchman Anton van Leeuwenhoek found over eight million living creatures in a drop of water and declared in 1683 that there were more animals in his own mouth than people in the United Provinces. Such new emphases forced wise men to think differently.

If the gentry clung to their blood sports, the urban middle classes came to respond to new fashions for "feeling" and "sentiment" (Uncle Toby's reluctance to kill the fly; Wordsworth's "I would not strike a flower as many a man would strike his horse"). Industrialization, too, arguably made its contribution to human attitudes, since animals became increasingly marginal to its production processes.

Finally, Thomas turns to trees and flowers. The period he studies saw the growth of a strikingly non-utilitarian attitude. Woods, no longer a symbol of barbarism to be cleared in the name of progress or a mere economical commodity, were revered for their amenity, their beauty. The rise of small-scale domestic flower gardening was particularly marked once again in the growing towns: it was a Barnes butcher who was one of the first in England to grow a magnolia from seed. The proliferation of species for the garden and of nurseries to supply them testifies to a newly pervasive love of gardens, satisfying a need at once aesthetic, emotional and (with vegetables cheek by jowl with flowers in cottage gardens) practical.

The last chapter focuses upon "a whole complex of changes" of which the carefully detailed examples were only a part: the oppositions of town and country, of cultivation or wilderness, the conquest of nature by resources or their conservation, of "meat or mercy". Much of this more general survey had been implied in earlier sections, but the book's movement towards a larger perspective in its final chapter stabilizes and deepens the previous, highly particularized exposition.

It is, in fact, impossible to convey the fullness, range and scope of Thomas's study. Its ease at making available and readable such a wealth of materials will fortunately make *Man and the Natural World* accessible to more than specialists. Indeed, its appeal even to them must be sufficiently large to include social historians, cultural anthropologists, geographers, biologists, historians of science, political scientists and literary scholars. Thomas confesses unrepentantly to making heavy use of "literary sources of a kind not fashionable among historians". These include the works of *virtuosi*, early county histories, local dialect glossaries, Loggan's views of Oxford and Cambridge colleges (for a dog and tree count), travel literature, animal and botanical treatises, diaries, political and religious pamphlets, guiding manuals, biblical exegeses, ballads and New Romney town archives (for lists of dogs), plus an awe-inspiring quantity of secondary materials on many topics. The materials which comprise a representative Thomas sub-section would probably take an average scholar a year to read and sustain a half dozen articles (indeed, one knows colleagues for whom they would suffice a whole career).

It is, however, this very density and

range of reference that pramps one's scepticisms about the book. Thomas's central method, familiar in part from *Religion and the Decline of Magic* but developed substantially here, is to expound some particular notion by a virtual catalogue of quotations, statistics, anecdotes, events, which all serve to indicate an attitude's currency. It makes for lively, informative reading, though one regrets having to turn constantly to the rear of the volume rather than the foot of the page to discover the sources. But the force of this made of argument depends upon our acceptance of the representativeness of the various evidence; to my mind, Christopher Smart, William Blake and (to a lesser extent) William Stukeley are not the most convincing spokesmen for the ubiquity of a concern for animal rights in the late eighteenth century. In seeking to articulate habits of thought not always or most typically voiced by "literary" writers, Thomas nevertheless often draws upon authors whose representativeness is questionable.

The three-hundred year period over which he follows ideas of the natural world is long, mammoth and full of "changing attitudes"; it would, in fact, be surprising if there had not been revisions and reactions. Therefore the development of ideas between 1500 and 1800 probably deserved more careful pacing. Especially since Thomas rarely refuses the option of good evidence after 1800, the span of time involved in his inquiry is long enough to require in the detailed paragraphs of documentation, already noted, some more discrimination of date than notations of "early" or "late" in the period, or of "the increasing feeling that...". Perhaps the historical map was clearer in the Trevelyan Lectures at Cambridge in 1979 which were the original occasion of this book, and the "good deal of additional material" invoked since has somewhat blurred the chronological outlines.

It would, however, also be improbable if the ideas which emerged by 1800 had not been manifest or latent much earlier. Thomas is scrupulously careful in registering these complexities, sometimes to the point when his own thesis is threatened. One rare occasion of a less than lucid exposition of such ambiguities involves his attention to the way in which the new science, first drawing much of its information from popular experience of the countryside, then made obsolete the outlook of ordinary people and simultaneously changed old anthropocentric views; yet it is his claim elsewhere that popular animal and flower lore contributed decisively to "changing attitudes". Occasionally, too, his generalizations sound amiss: Shakespeare may have had "nothing good to say about the dog", but what of Laurence's scene with his dog Speed in *Two Gentlemen of Verona*? It seems, in fact, an opportunity missed for further illustration of man's constant ambiguities.

Keith Thomas says he does not offer his book simply as a Whiggish search for the intellectual origins of the National Trust or the Friends of the Earth. But inevitably he casts light upon the coolie, the doubt and confusions which assail the modern world, early and late, in its continuing need to relate to its natural world, for it is precisely those which he has charted. Yet even more rewarding is the light thrown, not on the past's responsibility for or continuity to our present, but on earlier mental worlds in their own right. A great bonus of the book is the fashion in which it yields unexpected insights into a whole range of writers from Marvell on fauns or mowers to Hardy on pig-sticking or the habits of animals on Christmas Eve. For, finally, it is Thomas's characteristic skill to make us respect the odd ideas which are now discarded and the sometimes odd notions which helped to oust them.

John Dixon Hunt has recently taken up the chair of English literature at Leiden University in the Netherlands.

BOOKS

Political aperitifs

Social Theory and Political Practice
edited by Christopher Lloyd
Oxford University Press £10.50 and £4.95
ISBN 0 19 827447 5 and 827448 3
A Dictionary of Political Thought
by Roger Scruton
Macmillan, £12.00
ISBN 0 333 33439 6

Christopher Lloyd's edited volume brings together a series of lectures given at Wolfson College, Oxford, in 1981, on the subject of social theory and political practice. The most striking feature of the book is the diversity of the responses to the same theme. Each of the seven contributors makes his own separate foray into the subject and returns with results that bear little resemblance or connexion with that of any of the others. The editor wisely refrains from suggesting that there is a close link between the contributions, and goes off instead to explore the field on his own, returning with his saddlebags full of German epistemology, and making the book even more diverse.

Ralf Dahrendorf heads the list of contributors and engages in some urbane reflections on the way that Hegel, Marx and Weber saw the connexion between theory and practice. He is followed by Tom Bottomore, who ducks all philosophical questions, and gives us a straightforward historical account of how the theories of some sociological thinkers were related to practical issues. Charles Taylor is refreshingly clear on the distinction between political theory and natural science. Amartya Sen is far more astute on the old issues of values and objectivity in the social sciences. John Dunn, after unminutely gloomily on the ideological "intoxication" of our age, launches into a furious attack on Margaret Thatcher, and then concludes by urging us to "detoxify" and adopt a humbler stance towards the role of social theory in solving our problems. His thesis would probably be supported by the next contributor, David Marquand, who shows that the consensus that has been driven out of the front door of British politics since the 1950s has now flown in again through the window in the form of the SDP. Marquand is chary however of describing the exact nature of the new consensus. Finally Włodzimierz Brus provides a neat conspectus of differing Marxist approaches towards an explanation of the conflicts that so potentially and obstinately persist in Communist states.

Those who are seeking for a systematic exploration of the connexion between social science and political practice will, in other words, be disappointed by this anthology. Those who are looking for an easily digestible aperitif prior to making such an exploration may well find it agreeable.

Those on the other hand who are troubled by words like hermeneutics, fascism, and kismet will find relief in Roger Scruton's *Dictionary of Political Thought*. This is a difficult and ambitious enterprise which has been carried out with panache and confusions which assail the modern world, early and late, in its continuing need to relate to its natural world, for it is precisely those which he has charted. Yet even more rewarding is the light thrown, not on the past's responsibility for or continuity to our present, but on earlier mental worlds in their own right. A great bonus of the book is the fashion in which it yields unexpected insights into a whole range of writers from Marvell on fauns or mowers to Hardy on pig-sticking or the habits of animals on Christmas Eve. For, finally, it is Thomas's characteristic skill to make us respect the odd ideas which are now discarded and the sometimes odd notions which helped to oust them.

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kind is that dictionary definitions, when applied to ideas and concepts, have the tendency to kill off all that is alive and provocative and leave simply the dead husk. Scruton deliberately attempts to avoid this, and succeeds - by making his entries vignettes rather than epigrams. Problems and debates are pointed up and commented on, rather than edited out.

Users of the dictionary will have fun tracking down the bias and quirks of the author. The stream of ideas that Scruton calls "cultural conservatism", and its various exponents - Coleridge, Carlyle, Arnold - get rather more space than one might reasonably expect. T. H. Green and the English idealist school of political thought get rather less. Anglicanism,

Common Prayer and Tractarianism are handsomely treated but nonconformity, Cobden and the Anti-Corn Law League are omitted. Blood sports and the public schools are out, but sex and marriage are emphatically in - perhaps they have strayed over from Scruton's study of erotic love, on which we are told he is currently working.

Quirks such as these are but a small price to pay for a work that is basically balanced, comprehensive, and fair, and has the merit of being both useful in a humdrum sense, and stimulating.

Murray Forsyth
Murray Forsyth is reader in politics at the University of Leicester.

Church versus State in South Africa: the case of the Christian Institute
by Peter Walshe
C. Hurst, £12.50
ISBN 0 905838 81 5

It is always difficult to know how to evaluate a committed book on a controversial subject. Dr Walshe, who is a South African resident in the United States, has not attempted a detached or balanced account of the Christian Institute: his is a self-conscious vilification of the policies of the South African government, with the history of the Christian Institute, up to its banning in 1977, as a case study.

Attitudes to the book will vary according to individual political disposition. But what the reader must always bear in mind, in scanning the landscape of South Africa as drawn by Dr Walshe, is that it is one-dimensional. Nowhere in this book is the dilemma of South Africa represented objectively; nowhere is there any acknowledgment of the real problems encountered by those who see no way of creating a satisfactory unitary state structure out of diverse cultural elements. The very means by which white South Africans once hoped for a cultural assimilation of the different races - education for blacks especially - are now increasingly productive of more division. Educated blacks, with the assumptions of black consciousness, are rapidly moving towards a rejection of the very liberal white values which once were supposed to assist their integration. Dr Walshe does not see agonizing dilemmas: he sees white racism, the selfishness of those unprepared to envisage sharing material well-being across the race barriers, the insensitivity of those who refuse to allow blacks to be citizens in their own country.

Here, then, is a sympathetic justification of the work of the Christian Institute, and of its leader Dr Beyers Naude. It is their illagencies that Dr Walshe regards as self-evidently true. He does, certainly, recognize some of the Institute's failings - yet these were errors, not of judgment about South African political realities, but of failure to achieve some of the objectives set. He does recognize, for example, that the Institute failed to achieve the support of any but a tiny minority in black society: it was a venture promoted and sustained by white progressives. He is frank - indeed exultant - about the Institute's revolutionary intentions. Its purpose, he writes, was "for the giving of power to the powerless". It abandoned attempts to reform white society from within and committed itself, instead, "to supporting black initiatives for justice and a black vision of the future". In the years immediately preceding its closure by the government, the Institute "formulated a strategy designed to encourage black consciousness and to prepare whites for a future in which blacks would exercise predominant political power." In this, Dr Walshe contends, the leaders rediscovered authentic Christianity and assisted "the evolution of black theology". In the process, furthermore, the Institute freed itself "from the stultifying grip of capitalist culture", and entered "the praxis of a liberation struggle". Those familiar with the sacred writings of liberation theo-

logy and the secular categorizations of Marxist historical analysis will find this familiar enough: the problem remains of how to evaluate it.

It is probably fair to say that Dr Walshe's study is valuable for what it sets out to do. It does, that is to say, provide the reader with an entry into the mind of South African political protest, and in an intelligent and lucid fashion. It also furnishes a full account of the growth and demise of the Christian Institute, but since this is a purely one-sided account - a tract to show that its suppression was unjust and imprudent - it has to be used accordingly. He has done his research thoroughly and honestly, he really does not see that viable alternative opinions exist. Some of his South African readers will find his polarization of the races rather too decisive, however. A note at the start of the book declares: "The term 'black' refers to African, Coloured (mixed descent) and Indian South Africans." It is not clear that most South African Indians will be happy to find themselves lumped together with the blacks, especially in view of their recent decision to cooperate with the government's new scheme of political participation. One is reminded of V. S. Naipaul's account of the Madras Indians who spoke of Africans as "savages", and of the Sikh who, in turn, referred to southern Indians as "niggers" and "blackies". White liberals do tend to allow their good intentions to sentimentalize racial realities among the non-whites. Dr Walshe's view of South African society is rather like that: remove the white racial oppressors from power and somehow everyone will get on. The Institute of which he writes was just the same.

Edward Norman
Dr Norman is dean of Peterhouse, Cambridge.

Unlucky Swinton

Lord Swinton by J. A. Cross
Clarendon Press: Oxford University Press, £19.50
ISBN 0 19 82660 0

Biographies of politicians who did not quite reach the top ought to reveal more about the era in which their subjects lived than studies of major political leaders. Prime ministers, after all, are, almost by definition, untypical. Could anyone have been less representative of the territorial aristocracy to whose survival he devoted his political career than Benjamin Disraeli? What less likely architect of the postwar welfare state could there have been than Clement Attlee, that epitome of army discipline and the public school virtues? Political leaders create the opinion of their age; lesser figures reflect it.

Lord Swinton might seem an ideal exemplar of this generalization. His active political career spanned nearly forty years - from the Lloyd George coalition to the occasion of Anthony Eden. Holder of a number of ministerial posts, the most notable was his tenure of the Air Ministry during the crucial years 1935-1938, when he pressed for the development of radar and for the production of the Hurricane and Spitfires with which "the few" were able to win the Battle of Britain. Unceremoniously sacked

when he came under fire by that faux ami Neville Chamberlain, Swinton was awarded an enconium from Churchill. "We were both sacked for the two best things we ever did. I was sacked for the Dardanelles; you were sacked for building the Air Force that won the Battle of Britain, and they couldn't undo what you did."

Yet Swinton's career never recovered from this setback and he never held a post of equivalent importance again although serving in both Churchill's wartime coalition and in the 1951 government. He remained a confidant of Conservative leaders and, for a period of over fifty years, part of the inner circle of Conservative politicians, but his two volumes of reminiscences, *I Remember* and *Sixty Years of Power* published in 1948 and 1966 respectively, are like so many similar volumes from Conservative ministers singularly discreet and unrevealing. A good political biography of Swinton could, therefore, fill an important gap in the historiography both of Conservative governments and of the party.

Unfortunately, Lord Swinton does not begin to fill this gap. Professor J. A. Cross has a high reputation as a writer on public administration but he has failed to notice the warning which Lord Swinton himself gave to potential biographers. "When someone who is going to write a life comes to talk to me, he has got all the historical facts and a lot of papers, but if he is the right kind of biographer, he wants to know what the man was really like. And that is not always revealed even by diaries and letters, much less by official records and memoranda."

Professor Cross has allowed himself to be dominated by his material. Instead of telling us what Swinton "was really like", or delineating the political context within which he worked, his biography treats politics as if it is a branch of administration. We are given full - indeed over-full - accounts of the various committees and inter-departmental bodies which Swinton guided to fruition. But we

are offered no guidance on the political significance of it all and none of the essential political background without which it is impossible to make sense of what happened. The doctrine that "what e'er is best administered is best" may have something to commend it, but one period on which, surely, it can shed little light is the interwar years when different conceptions of Britain's role in the world jostled confusingly for attention. Lord Swinton was in most respects a very typical Conservative of these years and a study of his reactions during a period when Britain was on the defensive both economically and militarily would have been of great value.

Professor Cross, however, cannot see the wood for the trees. The endless committees whose activities he describes, far from adding verisimilitude, serve only to reduce the politics of the period to the impersonality of a Civil Service memorandum. For this reason Lord Swinton is no easy reading and it is indeed difficult to imagine anyone reading it for enjoyment. The biography will remain a quarry for historians seeking detailed information about Swinton's activities for it is factually accurate, and based on a wide range of unpublished material, including what is clearly an extensive collection of Swinton Papers at Churchill College, Cambridge. Yet it does not provide the illumination which the historian seeks, and, in this sense, it is a missed opportunity.

Napoleon demanded lucky generals. Politicians need luck too, not only in their careers but also posthumously when their biographies come to be written. Lord Swinton was not a very lucky politician, and his bad luck has pursued him even beyond the grave, for he has been buried for ever underneath a mountain of official files.

Vernon Bogdanor

Vernon Bogdanor is a fellow of Brasenose College, Oxford.

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Harrap Books

BOOKS

Modern relevance

New Essays on Dostoevsky
edited by Malcolm V. Jones and
Garth M. Terry
Cambridge University Press, £25.00
ISBN 0 521 24891 6

Dostoevsky achieved literary renown in the English-speaking world rather later than his contemporaries, Tolstoy and Turgenev; he was not, in fact, at all widely read until the second decade of this century when Constance Garnett produced her impressive 12-volume translation of his works. Since then, however, interest in Dostoevsky has grown steadily as his tortured complexity, his precocious faith and his gnawing awareness of the darker side of man and the universe came to seem more relevant to the modern reader than either Tolstoy's confident clarity or Turgenev's elegant reticence. Modern literary critics too have long found Dostoevsky a rewarding subject of study, and it was curiously fitting to mark the 100th anniversary of the Russian novelist's death with a volume of essays by 10 English and American scholars.

The editors of *New Essays on Dostoevsky* have done well to find a way to order their material in a pleasing pattern. They begin with two general essays – an introduction and a review of recent assessments of the early Dostoevsky – and end with two more broad surveys – on account of formalist and structuralist approaches to the Russian novelist and a comprehensive list of books and articles on Dostoevsky published in Great Britain since 1945. Between these opening and concluding items come four essays on Dostoevsky's four major novels, *Crime and Punishment*, *The Idiot*, *The Devils* and *The Brothers Karamazov*, and two studies of key themes, first the writer's religious views and then his analysis of freedom and the human personality.

Three of the contributions are particularly attractive: Derek Offord's splendidly lucid account of Dostoevsky's disputes with the mid-nineteenth-century Russian radicals' view of human nature (and hence of crime) in *Crime and Punishment*;

Sergei Hackel's detailed analysis of Zosima's teachings in *The Brothers Karamazov*, emphasizing the oddly heretical nature of much of the elder's thinking; and Stewart Sutherland's stimulating comparisons between Dostoevsky's argument about freedom and those put forward by the modern British analytical philosophers Donald MacKay and Peter Strawson.

In spite of their diverse concerns the contributors to *New Essays on Dostoevsky* have greatly aided the editors by sharing a common approach to their subject. Their arguments are consistently authoritative, carefully formulated, and always grounded in a close analysis of Dostoevsky's texts. Most of the essays are easy to read, though there are patches of academic heavy-footing, most notably in Christopher Pike's piece on formalist and structuralist approaches.

All the essays agree that the Russian novelist is not only intriguingly complex, but also directly relevant to modern literary, political and philosophical thinking. Where they might not agree is over the vexed question of Dostoevsky's deepest sympathies, whether he was more consistently a Christian believer or a black nihilist, on the side of Christ or the Grand Inquisitor. In Ivan Karamazov's majestic poem, a compassionate lover of suffering humanity or, in Mikhailovskiy's words, "a cruel intent". This question is unfortunately not debated in the main body of the volume, though in his helpful introduction Malcolm Jones argues that the evidence in both the novels and the author's personal life suggests that the dark view predominates.

In sum, *New Essays on Dostoevsky* certainly fulfils the editors' aim of illustrating the breadth of the novelist's achievement. Indeed, taken together, these essays comment on most of those features in Dostoevsky's fiction which have excited readers and critics for more than a hundred years, and in so doing they have combined to form a fine century tribute to a still fascinating and still influential Russian literary giant.

D. J. Richards

D. J. Richards is reader in Russian at the University of Exeter.

Fredson Bower's editions of Vladimir Nabokov's *Lectures on Literature* and *Lectures on Russian Literature*, both now in paperback from Picador at £3.95.

Walrus of genius

The Letters of Gustave Flaubert
1857-1880, volume two
selected, edited and translated by
Francis Steegmüller
Harvard University Press, £12.00
ISBN 0 674 52640 6

This splendid second volume of Flaubert's letters takes the English reader on a gently-guided tour from the composition of *Salammbo*, through the *Sentimental Education*, the *Temptation of Saint Anthony*, *Bouvard et Pécuchet*, to Flaubert's last brief letter to Maupassant, a half-joking grumble about the success of *Les Sentiments de Madame*. Steegmüller has made a sensible selection from what is, in its entirety, an often repetitious correspondence, and he has linked each set of letters with a modest, informative narrative of events. What he gives us, in fact, is much more than an edition: in his learned hands, Flaubert is coaxed into producing something like the autobiography of a man of letters.

Steegmüller translates very closely, with a minimum of recasting, to leave Flaubert with his own, very French voice. "Your devotion caused you to take false alarm, chère Madame," begins one (admittedly formal) letter to Mme Cornu (intended for the *Empress's* eyes), and one wonders whether a little translation might not have helped Flaubert here to sound less like John Cleese acting a *ci-devant* aristocrat. Generally, however, Flaubert's prose reads as jerkily in English as in the original, and he never sounds like Steegmüller, which is necessary to the design of this edition.

The footnotes are copious and informative throughout; but when Sainte-Beuve criticizes the factual basis of *Salammbo*, and when Flaubert replies to spike most of the critic's guns, the scholar in Steegmüller seizes the chance to demonstrate the thundering power of *Anmerkungen*. Every reference and allusion, classical and modern, is located and the sources quoted, every idiom in this field acknowledged. It is a fine display, and one can only sit back and applaud the thoroughness of it all. The victory is as definitive as it is Pyrrhic – for who will ever annotate the annotator?

The later decades of Flaubert's life coincide of course with the long exchange with George Sand, only recently brought out in a full critical edition in French (by Alphonse Jacobs, 1981), and it is in these letters that the doctrines of impersonal art are expounded and defended at greatest length. Given the centrality of Flaubert not only in French but also Anglo-American critical thought in recent years, the presentation here of a very broad selection of the Sand letters in their full context is an event of some importance; and although it is inconsistent with the doctrines themselves to proclaim this, it is the human and emotional context which gives Flaubert's exposition of artistic principles its full sense.

The hermit of Croisset, as he had now become definitively, was a rambling, raucous and vulgar man in company, and often in correspondence. Together with Turgenev, he spent Easter 1873 as a house-guest at Nohant. George Sand's diary entries: "Flaubert puts on a skirt and tries the fandango... Flaubert talks with animation and humour, but all to do with himself, Turgenev, who is much more interesting, can hardly get a word in... I am tired, worn out, by my dear Flaubert's love, him very much... but his personality is too obstreperous." In many of the letters, that grating, obstreperous personality throws out opinions and attitudes of quite stunning allusiveness, occasionally of brutal tactlessness, as when he tells George Sand that "women are the cause of all our woes". It is no doubt easier to be amused by the anorings of a walrus of genius at the safe distance of a hundred years than it was for Flaubert's friends, and one is struck by the tolerance and love that he seems to have been able to rely on, from George Sand in particular. She believed in Flaubert's wisdom and

intelligence, and did her best to explain away the sharper edges of disagreement (on almost everything) as the by-products of Flaubert's difficult temperament. But things were not even as simple as that. Like the philistine bourgeois he reviled, Flaubert did pressure his niece into marrying for money not for love (and paid for that advice in later years); he did play soldiers in 1870 like any puffed-up *renier*, and then plunged into black despair of the human race after the horrors of 1871. His scorn for politics was little different from the received ideas of the average newspaper-reader of the 1870s, and his understanding of science, economics, history, even people, is often, in these letters, at best undistinguished.

In this context, the doctrines of impersonal and impassive narration begin to take on a different hue from the pure whiteness of selective quotation. What if Flaubert had, like George Sand, put more of himself, of his views and wishes, into his fictional writing? Would the whole pack of cards not have fallen down into an ignominious pit of unlearned prejudices? If Flaubert was intelligent, it was in his knowing that his personality, at least, had to be kept as far away from his art as possible. Thus the extraordinary and painful paradox of Flaubert's endeavour to a task for which he was, psychologically and intellectually, unsuited. Perhaps it was his awareness of the pain that made the good lady of Nohant so tolerant of Flaubert's frequent stupidities; for her to constitute a long struggle for respect, but in the end, it seems to me, the artistic values preached so forcefully by Flaubert, on both sides, to the higher value of *tendresse*, and become part of a rarefied and poignant sentimentality.

If Steegmüller's first volume showed us Flaubert through the stages of his education as a writer, this one contains the last chapter of his sentimental education.

David Bellos

David Bellos is professor of French at the University of Southampton.

Lay life sanctified

Cervantes and the Humanist Vision:
a study of four exemplary novels
by Alban K. Forelone
Princeton University Press, £30.50
ISBN 0 691 06521 7

In this latest addition to his growing list of authoritative works on Cervantes Professor Forelone sets out the interpretative context of the intellectual context of Erasmus humanism.

His purpose is to show that Cervantes is not the representative writer he has often been taken to be, and that the key to those texts which have either resisted literal interpretation or been reduced by it to embarrassing simplicities lies in complex and ambivalent codes of reference that are rooted in the traditions and thinking of Cervantes's age. Forelone's great strength is that he values all critical aids – those of cultural, intellectual and historical scholarship as well as those of close textual analysis – and uses them expertly and rigorously.

Forelone's approach illuminates four of the exemplary tales that have in different ways proved problematical. *El celoso extremeño*, normally regarded as the most conventionally perfect of the toles, is shown in its final, revised version to have moved away from social or satirical interest into a coding of symbolism and literary of freedom in a richer, more profound way than does the earlier version. The appealingly romantic *La gitanilla* is presented as a sophisticated celebration of Erasmus' ideals of marriage, family and state. *La fuerza de la sangre* is interpreted as a secularized miracle in which divine providence shares the credit for a happy outcome with human agents, and Calderón's play *El Divino Orfeo*, (University of Toronto Press, £26.50.)

Unlira, however, that represents the book's major interpretive contribution. Forelone presents it as an engagement with Cynic philosophy and the moral implications of satire that propounds a vision of knowledge as the route to *homonitias* and thence to moral perfection. The flawed philosopher in his undirected curiosity and his aimless pursuit of knowledge separates himself from the body of humanity – hence the dehumanization of his maddest state. It is the one interpretation so far to make real sense of this extraordinary work (which remains for all that an unsatisfactory story).

The burden of all four analyses is that the Christianity of the *Novelas ejemplares* is the Christianity of Erasmus centred on the sanctification of lay life, that Cervantes's vision is the humanist vision of a harmonious relationship between the secular world and the divine rather than the dualistic view of flesh and spirit that for Forelone informs seventeenth-century Spanish writings as a whole. It is the too emphatic separation of Cervantes from these writings that Cervantes risks losing our assent. Cervantes's confidence in man's ability to lift himself and his civilization towards the level of redeemed nature is certainly greater than that of most Spanish writers of the time, but what Forelone sees as the pervading presence of a demonic world in the exemplary tales that counterbalances the world of order, reason and authentic freedom suggests a dualism that has much in common with the Counter-Reformation emphasis on the darker side of human nature and experience.

The very selective representation of seventeenth-century thinking presented here, Calderón is consistently used as a typical proponent of the sort of inhumane *desengaño* to which Forelone opposes Cervantes. But *desengaño* was not a monolithic vision of heartless and unrelieved gloom convinced of man's depravity that denied this world to preach the next. It came in different shades and strengths. Axially it decried not life but illusion – whether this emerged as realism or pessimism depended on the point of view, the temperament, even the moment. Forelone himself refers us to this spectrum when he talks of "the general satirical aim of the work [*Quijote*] to *desengañar*". What does the ending of the *Quijote* represent if not revelation, the serene rejection of illusion at the moment of death? If liberation and redemption are achieved in *El celoso extremeño*, they are not achieved in fact for this world. Cervantes's works are not bereft of otherworldly trajectories. For Forelone *desengaño* seems to rule out literary ambivalence. But if, as he suggests, the criterion for literary openness is a rejection of the rigid structure of definitive pronouncement, then the inability of critics to agree on the interpretation of any of the major Spanish writers of the period suggest that they too were artists and creators rather than preachers, philosophers or establishment propagandists.

This qualification apart, Forelone's book is impressive, a work by an initiate for initiates, a monument to the allure of scholarship (the footnotes rival the text in length) at the service of critical ingenuity. The effect is dazzling but at first, perhaps, alienating. The prose frequently threatens to collapse into the hermetic opacity of much modern academic criticism and for some taste the extended discussion of other works, the detailed references to cultural, intellectual and historical context, might be too self-indulgent. But that it is a magisterial contribution to Cervantes studies there can be no doubt. No one who reads it thoroughly can fail to emerge from the experience illuminated and much better informed.

Melvena McKendrick

Melvena McKendrick is a fellow of Girton College, Cambridge.

Edited by John Warden, *Orpheus: the musanaphosis of myth* is a collection of essays on the figure of Orpheus as portrayed in Virgil and Ovid, Renaissance art, the operas of Peri and Monteverdi, and Calderón's play *El Divino Orfeo*. (University of Toronto Press, £26.50.)

BOOKS

Pascal guides

A Student's Guide to
Programming in Pascal
by L. V. Atkinson
Wiley, £4.95
ISBN 0 471 10402 7
16-part video series, £904.00
ISBN 0 471 10401 9
Pascal at Work and Play
by R. S. Forsyth
Chapman & Hall, £15.00 and £6.95
ISBN 0 412 23370 3 and 23380 0

Both of these books on Pascal are directed at those who have no experience of programming. Atkinson aims to teach how to write Pascal programs which are transparent, efficient and secure; and I believe that he succeeds on all three counts. He gradually introduces the constructs of Pascal, providing about 100 programs and about 160 exercises for the reader to solve.

There seems little agreement about the order in which constructs of a programming language should be taught: here arrays and records are taught in the last three chapters, topics that I would have preferred to see earlier; on the other hand, buffer variables, get and put are advanced concepts, which Atkinson introduces in chapter five.

The book is accompanied by a 16-part video series, each chapter corresponding to a video session lasting about 30 minutes. Although it is possible to use the book without the videos, this latter requires the text because it covers the material at a fast pace. Some points, however, are better expressed on the video than in the book; and even though a television screen is limited to about ten lines of program text, I found that the sessions on breaking a problem into procedures and on declaring variables locally were more successfully accomplished on the video than in the book.

Forsyth takes just 180 pages to introduce most of Pascal. The rest of the book (100 pages) then provides four case-studies; a four-tape sort, finding the shortest path in a network, simulation of a football game and a Go-Moku playing program, each presenting a large program (most are about 10 sides long).

Although Forsyth states that the best way of achieving competence as a programmer "is to write programs, and plenty of them", his book does not encourage the reader to do so. During the first 90 pages the author introduces variables, assignments, expressions, simple input/output, loops, conditionals, procedures and functions. About eight programs are given in the text and eight questions are set for the reader to solve. Thus the book does not present enough illustrations in a simple context of the constructs of Pascal and it does not test the reader's understanding of those constructs.

The author also states that the "second best way of achieving competence as a programmer is to read non-trivial programs and see how they work". Although reading such programs is beneficial, there is still a need for a programmer to understand how to build non-trivial programs. Unfortunately, the case-study programs are presented with very few details of how they were constructed.

There are three other problems. First, the author uses non-standard Pascal: reading booleans, enumerated types and strings, an otherwise: port to case statement, a predefined type *file*, and input and output are not given in the program heading. Although most of these are mentioned as being non-standard, the extensions are used throughout the book.

Second, there are many examples of short identifiers. Although these may be excusable in some circumstances, their appearance in the case-studies makes the 10-page programs difficult to read. Finally, there are some misleading statements: "in practice, most compilers have some sort of limitation" to the number of dimensions to an array; arrays may be compared for equality; "in practice most compilers forbid arrays of files"; "records cannot have any fields which are files"; NIL is



Blaise Pascal (1623-1662), inventor of several early metal calculating machines. Taken from *Frontiers of Computing* by F. Gareth Asbury, published by Frederick Muller at £7.95.

a standard identifier; "dispose(p) may de-allocate all storage cells allocated later than p as well" as the storage that p points to.

Even though Atkinson does not cover as much material as Forsyth, his is the better book and I would be happy to recommend it to my students.

Barry Cornelius

Barry Cornelius is a lecturer in computer studies at the University of Hull.

Curved space-time

Classical Fields: general relativity
and gauge theory
by Moshe Carmeli
Wiley, £37.25
ISBN 0 471 86437 4

The problem of unification of gravity with the other forces of nature (electromagnetic, radioactive and nuclear) is one which occupied Einstein for the last 30 years of his life. In spite of his careful and powerful scrutiny, as well as that by many other scientists since then, the problem has defied solution.

There have been many exciting developments in the unravelling of the structure of the other forces of nature, of which the most dramatic is the collection of increasingly better evidence for the existence of the intermediate vector boson predicted by the unification of electromagnetism and radioactivity by Salam and Weinberg – has only just occurred. But this increase has still left the gap between gravity and the other forces as wide as ever. Any attempt to unify these must take account of the presently understood aspects of each side; it is thought that Einstein failed because he tried to make everything look like gravity.

Having said that and accepted that the problem is still as intellectually challenging as it has ever been, we must recognize that the problem is extremely difficult even to begin. This is because we know from Einstein's great contribution that gravity corresponds to curvature of space-time. It is an intrinsic feature of the world in which we live, based on the fact that the motion of material bodies in a gravitational field is only dependent on where the body is, not on the detailed features of the body itself. The other forces, however, are very different. For example, electrons in an electric field move in the opposite direction to positrons in the same field (a positron is the same as

an electron, but with opposite electric charge). Thus electricity (and similarly the other forces) could never be regarded as intrinsic features of space-time. Any book which attempts to show how gravity and the other forces may be similar is to be welcomed, since all possible similarities must be seized upon and scrutinized carefully to see if they would allow a fully-fledged unified theory to be constructed.

Looked at in this light, the present book should be very important. It presents the basic geometric theory of gravitation as developed since the time of Einstein and the theory of so-called gauge fields which now describe matter so successfully. The first two-thirds of the book is devoted to gravitation proper, and the remainder is devoted to gauge fields and their interrelation with gravitational fields. Both parts are very thorough in the way the various topics are discussed, although for gauge fields this is limited nearly completely to description of the pure gauge field aspect and only half a page to the Salam-Weinberg theory.

Given the author's interest as a classical relativist, that is, possibly understandable, however, the book has a rather dated appearance, especially because the crucial problem of unifying the disparate forces is not discussed in any satisfactory way.

The great developments of unified gauge theories of the past two decades were based on the search for theories which were sensible when quantum effects were included. This criterion of having a happy marriage between quantum mechanics and the force fields of interest has so far proved impossible to satisfy for gravitation. Great effort is presently being put into finding a unified theory which also satisfies this criterion. Some researchers hope that this will only be possible if matter interacts in a very special way. The best candidate for this is supergravity, which can also represent the other forces in a geometric fashion if they correspond to curvatures in higher dimensions. There is no mention of supergravity and only a disparaging one to higher-dimensional approaches in Carmeli's book.

These criticisms do not allow me to recommend the book unreservedly. For a presentation of mathematical techniques and of classical gravitation, the book is very good; for any insight into where the important developments and real difficulties lie, I feel it is not at all satisfactory.

J. G. Taylor

J. G. Taylor is professor of mathematics at King's College, London.

Heaven's keystone

The Sun, Our Star
by Robert W. Noyes
Harvard University Press, £16.00
ISBN 0 674 85435 7

The study of the Sun is one of the most exciting branches of astronomy at the present time. It has traditionally played a central role in astrophysics because, as our closest star, the Sun provides a unique opportunity for detailed study of cosmical processes at work.

Fifteen years ago solar astronomy had become something of a backwater, with many of the ablest astronomers turning their interests to more distant and exotic objects. However, this trend has recently been reversed and solar astronomy is undergoing a renaissance for several reasons. Spectacular observations from recent satellites (such as Skylab) and high-resolution ground-based telescopes have transformed our view of the Sun, and there have been enormous advances in solar plasma physics theory, which describes the subtle interaction between the Sun's magnetic field and its plasma atmosphere. Also, the link between the Sun and the study of other stars, the so-called "solar-stellar connection", has been given a new lease of life by the discovery of solar-type activity on other stars.

In his book Professor Noyes has captured the mood of the solar renaissance and described the new observations and theories of the Sun's behaviour with marvellous clarity and great enthusiasm. In a lucid style he has succeeded admirably in summarizing the important results of current research for a wide audience. Throughout, he discusses the historical background and has a wonderful knack of describing simply the basic physical processes without the use of mathematical equations. The book is attractively produced and richly illustrated.

Noyes begins with a description of the way the Sun was born from a contracting cloud of dust and vapour five billion years ago. He compares the present overall properties of the Sun, such as size, distance, brightness and temperature, with those of other stars, laying great emphasis on the important role of the magnetic field in almost all the phenomena of interest on the Sun today. Its magnetic activity causes many effects on the Earth, such as the disturbance of communications and electric power transmission after a solar flare or the beautiful aurora borealis. There may even be subtle linkages that affect our climate and weather. He then describes what we could deduce about the properties of the quiet solar surface from a visit to a modern

solar observatory, and unravels the wealth of coded information present in a shaft of sunlight to give details of the chemical composition and surface motions.

The author reveals some of the tricks that astronomers use to explore one of the most inaccessible places in the Universe – the interior of the Sun. He explains the structure and inner workings including the fuel that makes it shine and the thermostat that controls its energy production by nuclear reactions such that four tons of matter are turned into energy each second. Strong magnetic fields generated in the interior create sunspots where they burst through the solar surface. Although the number of these sunspots is known to be cyclic because of an oscillating magnetic dynamo, their absence during the Maunder minimum from 1645 to 1715 is still puzzling.

The next few chapters describe the Sun's atmosphere, including the ruby red chromosphere and the corona that is revealed during solar eclipses as a pale white halo. They also outline the way in which magnetic fields heat the corona to two million degrees (by comparison with the surface temperature of only six thousand degrees), although the details of this process are at present a matter of intense debate. They show the exciting new discoveries from the Skylab satellite concerning the coronal explosions (known as solar flares) and the holes in the corona from which winds are known to emanate.

In a final section, the author presents the mounting evidence for a connexion between the Sun's activity and our climate, although the mechanisms involved have still not been discovered. He also debates the possible role of solar power as a partial solution to the world's energy shortage. And finally, he tells the story of the future evolution of our Sun, which will end up in ten billion years time in the bizarre stellar state known as a white dwarf.

Throughout, the author presents his ideas clearly for the non-specialist in an engaging style that makes it a great pleasure to read. I can recommend the book most highly.

E. R. Priest

E. R. Priest is reader in applied mathematics at the University of St Andrews.

Volumes two and three of the *Handbook of Artificial Intelligence* have been published by Pitman. Volume two, edited by Avron Barr and Edward A. Feigenbaum and available at £22.50, covers features of AI programming languages, expert systems, and automatic programming. Volume three, edited by Paul R. Cohen and Edward A. Feigenbaum and available at £28.50, contains chapters on models of cognition, automatic deduction, vision, learning, and planning, as well as an index, bibliography, and cumulative index for all three volumes.

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BOOKS

LAW

The way that you say it

Linguistic Evidence: language, power and strategy in the courtroom
by William M. O'Barr
Academic Press, £15.60
ISBN 0 12 523520 8

Written words matter and advocacy is regarded as an art. Whether or not language is power, it is a powerful tool which lawyers have deliberately and successfully employed. What is less widely known is that the form in which language is presented may be an important part of the message and the way it is received. Form may give social information about the speaker, his situation and his relationship to the audience. It is form in this sense with which this book is concerned.

Mr O'Barr and colleagues at Duke University set out to examine the patterns of language used in trial courts and the strategic use of language by courtroom participants, in particular by witnesses. Some 150 hours of courtroom speech were tape recorded and analysed. Four patterns of speech variation ("powerful" versus "powerless" speech style, narrative versus fragmented testimony, hyper-correct versus formal style, and simultaneous speech by lawyers and witnesses) were selected for intensive investigation. Short extracts to testimony were then re-enacted by lay people, played to groups of students and the responses of the students to various questions compared to the responses of other student groups who listened to structured variations (in form) of the same extracts.

There is in this book a great deal of general, discursive discussion, not underpinned by any obvious conceptual thinking, and the substance of the findings is confined to a few pages in the middle. Although some have suggested that the use of powerless language is gender-related, it is suggested (on the basis of weak observations and impressionistic data) that it is more a function of social powerlessness. Experiments (based on a small, edited excerpt taken from the testimony of a single witness) showed for both male and female witnesses that the use of the "powerless" style produced consistently less favourable reactions to the witness than did the use of the "powerful" style of testimony. Similarly, it appeared that witnesses who eschewed hypercorrect speech patterns, testified with minimal assistance from the lawyer and who resisted attempts by opposing counsel to cut short their remarks, enhanced their credibility by making a more favourable impression on the student observers.

The author seems confident in his work. "We do not believe," he writes, "that the subjects or the situation in which our studies were conducted limit or diminish in any way the significance of the general findings." I am less confident. The fact that it is limited to one court area in North Carolina which is said to have "typicality" (of what is not disclosed), that the jurors were students and the judges law students, that there is no or inadequate discussion of the nature of the subject groups or of the limitations of experimental laboratory exercises of the kind employed, may be some indication of weaknesses. But there is worse still.

Although the author does appreciate that other matters, such as demeanour, may be of significance to jurors or judges, he fails to take into account the non-linguistic context of language use which is central to what we understand as meaning. Bits of testimony, abstracted from context, divorced from notions of power, status, influence, demeanour and the like, will reveal limited information, no matter how close the analysis.



Jeremy Bentham: engraving from a portrait by G. Watts.

That these findings might be of some value to those who think that witnesses should be coached is conceivable but unlikely. They will certainly have no value in other settings. No epistemological issue is raised, no question of any significance: the trivial and marginal is given centre stage. If sociolinguistics has a contribution to make to the study of law (and I believe it has), the case for it is not made out, rather it is dented, in this slight but not short volume.

Actually, the book does inadvertently demonstrate one feature of language which sometimes is seen in courts of law: that lack of substance is rarely disguised by long-windedness. Sometimes it is what you say not the way that you say it that gets results.

Michael McConville

Dr McConville is a senior lecturer in law at the University of Birmingham.

Legal obligation

Essays on Bentham: jurisprudence and political theory
by H. L. A. Hart
Oxford University Press, £15.00 and £4.95
ISBN 0 19 825348 6 and 825468 7

It is a measure of H. L. A. Hart's stature in contemporary philosophy of law that this collection of essays will be read as much for their intimations of Hart's own jurisprudential development as for his insights into the mind of Jeremy Bentham, Britain's foremost legal theorist of the early nineteenth century.

Hart presents Bentham as an only partially recognized forerunner of modern deontic logic and theory of meaning and as the originator of a subtle and essentially correct positivistic legal theory from which we have still much to learn. Many readers will already be familiar with these, the major topics of his collection, as all but one of the essays have already appeared in various journals. Some, such as "Legal Powers" and "Legal Rights" have been very influential. Others, such as "Legal Duty and Obligation" and "Natural Rights: Bentham and John Stuart Mill" are not so well known. Two of the essays, "Bentham and Beccaria" and "The United States of America" are of largely historical interest, but the impression left by the essays as a whole is that of a formidable attempt to draw together many of Bentham's pioneering analyses of legal concepts which have been cultivated with prodigious labour, from his unmanageably voluminous works. Bentham's "method of detail" may have led him to write more than we could ever hope to read for ourselves, but, through the medium of Hart's skilful selectivity and elegant prose, we can now enjoy many of the fruits of his fertile mind.

Hart's own jurisprudence, as set out in *The Concept of Law*, is both a critique and a refinement of a Benthamite imperative theory of law. Several of the essays in this book develop Hart's earlier criticisms, particularly in connexion with the ideas of sovereignty and legally limited government, and the inability of the imperative theory to explain legal obligation and legal validity. However, a recurrent theme in the book is that Bentham's complex analyses give us helpful pointers towards more tenable positions. Thus Hart is at pains to defend Bentham's rigid separation of law and morals, and in this connexion presents economical and devastatingly effective counter-arguments to the natural law tendencies in the works of Lon Fuller and Ronald Dworkin.

In a final chapter, not previously published, Hart then responds to the challenge that it is not possible to give an adequate account of legal obligation without incorporating a moral element into its analysis. While rejecting any imperative theory which terminates in the simple notions of command and sanction, he extracts from Bentham's treatment of these concepts the idea of "an authoritative legal reason" that is

a consideration (which in simple systems of law may include the giving of a command) which is recognized at least in the practice of the Courts, in what I term their rule or rules of recognition, as constituting a reason for action and decision of a very special kind. Reasons of this kind I term 'peremptory and content-independent' and they constitute legal guides to action and legal standards of evaluation (page 18).

Hart argues that such content-independent peremptory reasons characterize a distinctive normative attitude, quite different from a mere "habit of obedience", which is central to the notions of authority and law-making. Legal philosophers will examine this suggestion with care to see if it can provide the basis for an answer to those critics who have questioned the nature and status of Hart's famous "rule of recognition". My own feeling is that, while Hart may have overcome some of the conceptual limitations of Benthamism, he does so at the cost of diluting the theory's explanatory force which depends on its capacity to relate legal obligation to the wider context of political power. Others may well conclude that, until we are provided with moral reasons to enable us to appreciate the rationale for such an apparently arbitrary type of special reason, we cannot have an adequate theory of legal obligation. It remains to be seen, therefore, whether this development in Hart's thinking is a substantial contribution to the "demystification of law", an objective which, as Hart points out in his introduction, Bentham shared with his uncharitable critic, Karl Marx.

Tom Campbell

Tom Campbell is professor of jurisprudence at the University of Glasgow.

BOOKS

LAW

Children's tribunals

Children and Justice: decision-making in children's hearings and juvenile courts
by Stewart Asquith
Edinburgh University Press, £18.50 and £9.75
ISBN 0 85224 429 0 and 466 5
The Scottish Juvenile Justice System edited by F. M. Martin and Kathleen Murray
Scottish Academic Press, £10.50 and £5.50
ISBN 0 7073 0296 X and 0337 0

In April 1971 Scotland abolished the juvenile court and established a new system of dealing with delinquent children based on welfare tribunals called children's hearings. The main change was that decisions about children were to be made in terms of their best interests rather than on traditional notions of the seriousness of the offence and individual responsibility. The new system was described as "unique" and "radical", and many involved in the juvenile justice system in England (which retained the juvenile court) looked with favour on the Scottish innovation, which both these books describe.

In the early chapters of *Children and Justice*, Asquith sets out his "conceptual groundwork". What this amounts to is a discussion of free will and determinism, their association with different philosophies of crime control and deterministic theories of crime causation. This is familiar enough territory but will be hard-going for the general reader and is not crucial to an understanding of the empirical study in the latter half of the book.

There Asquith compares the practice of decision-making in children's hearings in one area of Scotland and in juvenile courts in one area of England in an attempt to determine whether there are differences between the two. This may appear to be an unnecessary task as, on the surface, there are basic and major differences: the children's hearing is not a court of law (and so deals only with uncontested cases), punitive measures (such as fines, detention centres and attendance centre orders) are not available to it and there is no right to legal representation before it. Other researchers, however, have suggested that the type of tribunal - be it juvenile court or children's hearing - is unimportant in terms of decision-making and that what matters is the philosophy underlying the tribunal and the ideology of its practitioners. Asquith claims to have tested this suggestion.

To do so, he contrasts the responses of the juvenile court magistrates and the members of the children's hearings to five case studies on the extent to which they followed various judicial or welfare factors. They were also asked in a small number of actual cases to indicate which factors were taken into consideration and how important these were in the decision. Finally, the content and form of interaction in a variety of juvenile courts and children's hearings were analysed.

Generally speaking, members of the children's hearings gave more weight to welfare considerations and magistrates to judicial. But it was more complex than this: children's hearing members did give weight to judicial considerations and magistrates to welfare factors in certain circumstances. In fact, Asquith concluded that when the type of offence, the number of charges and the number of previous offences were held constant there were very few significant differences between the juvenile court and the hearing in the importance given to judicial considerations. Asquith suggests that "apparently similar decisions were made on the basis of very different reasons". Magistrates, for example, justified

their decisions more frequently than members of children's hearings in terms of punitive objectives (23 such statements compared with none at all). But does this difference matter if the decisions reached were similar? It certainly would not to the child. Also, to what extent can we be sure that the reasons of children's hearing members were not, in fact, rationalizations? They are not meant to have punitive objectives and this might well have inhibited explicit reference to such considerations.

Differences between hearings and juvenile courts were clearer in the analysis of their form and content. In the former, the children and their parents played a more active role; in the latter, lawyers and police prosecutors were the major contributors. Asquith seems to prefer the Scottish system for this reason. But again does this difference really matter? For example, on only 11 occasions did members of the hearings disagree with the recommendation made in the social inquiry report compared with 30 such occasions among the magistrates. This suggests that, despite their contributions, parents and children had a limited impact on the decisions reached.

None of Asquith's findings is surprising. After all, in England the Children and Young Persons Act 1969 was never fully implemented and so its welfare ideology and provisions never got off the ground (a point Asquith does not make explicit). Nevertheless, Asquith concludes that courts and tribunals are very different forms of proceedings and that their very structure influences decision-making within them. But what he has shown is that the practice of decision-making in these two areas, which did not have a common philosophy or ideology in the first place, differed. The real question is whether such differences are inherent in the structures. The experience of the American juvenile courts would

suggest not, but, in any event, Asquith's research is not an adequate test of this proposition.

The essays in *The Scottish Juvenile Justice System* (edited by F. M. Martin and Kathleen Murray) are aimed primarily at meeting the training needs of members of the children's hearings and, as such, have three objectives: a description of what actually happens in the hearings, an assessment of current practice and advice about improving procedures where necessary. What makes the book of more general interest is the frequent reference to research findings. The possible advantages of the Scottish system are emphasized particularly the low rate of referral to the hearings by the reporter, the individual who decides whether or not the child is in need of compulsory measures of care; but so too is non-compliance with statutory procedural requirements. Since only 6 per cent of children's hearing members thought that observance of such requirements was an important aspect of an ideal hearing, one must be sceptical about the extent to which this can be improved by training.

In debates about juvenile justice, it is important to distinguish rhetoric from practice. Asquith demonstrates that the Scottish system is not as radical or as unique as is claimed. A question frequently raised in this context is "which system is better?" Answers to this derive as much from personal taste as from research findings for both are systems for controlling delinquency. A more important question is how can we create a system of juvenile justice which promotes both procedural and substantive justice. Neither jurisdiction currently provides this.

Allison Morris

Allison Morris is lecturer in criminology at the University of Cambridge.

Snakes and ladders

The International Law of Human Rights
by Paul Sieghart
Clarendon Press: Oxford University Press, £45.00
ISBN 0 19 876096 5

Attempts to provide adequate protection for human rights at the global level have been impeded by the fact that the subject is an ideological football: states are glad to wax indignant at the misdeeds of their political opponents, but are exceedingly reticent about criticizing their friends, and most unwilling to have their own wrongdoings subjected to international scrutiny. One reason why the European Convention of Human Rights has been relatively successful is that it is confined to a group of states with a relatively high degree of political and cultural homogeneity; there are, however, very few regions where these conditions can be reproduced.

Careful perusal of the instruments in this compendium of human rights treaties is consequently a rather discouraging exercise. The tendency is to "guarantee" rights with one hand, and then provide all sorts of safeguards, loopholes and procedural advantages for governments with the other: even the European Convention could be appropriately described as a game of snakes and ladders for applicants, and ladders for governments. Furthermore, the machinery for supervising compliance is merely adequate. All of these treaties envisage some sort of system whereby states report on the progress they have made in implementing the rights in question, but experience shows that states are not zealous in reporting their own misdeeds, and there may be little that an international committee can do if its only powers are those of commenting on national reports.

The most effective system which has yet been devised is one whereby individuals whose rights have been violated can go to an impartial international tribunal having the power to investigate their complaints and publicly adjudicate on them. Admittedly, the judgment is only a piece of pap-

er, but in countries where there is a free press and political opposition is permitted an adverse report can be a source of considerable political embarrassment and, consequently, represents a reasonably effective sanction. But for this very reason, most governments have refused to subject themselves to so rigorous a system, and in any event there are few countries today where we can find the freedom of speech and of opinion necessary if the sanction is to bite. The present position is, then, somewhat unsatisfactory, and the prognosis is no better.

Unlike most authors of collections in this field, Mr Sieghart does not set out the texts in their entirety, one after the other; instead, he breaks down the substantive rights into headings and sets out the relevant articles of each of the treaties which relate to the topic under examination. Other parts of the volume deal with the history and background of the instruments in question, provisions of general application and the machinery for the interpretation, application, enforcement and supervision of the treaty obligations. The book has been written by a practitioner primarily for practitioners, and there is very little speculative discussion of what the law should be, or what interpretations of ambiguous terms are possible. On the other hand, the volume is well furnished with useful factual information, such as references to decided cases and tables showing which states have ratified what instruments, with what reservations, and so on.

Such a design does have its drawbacks. The fragmented approach makes it very difficult to appreciate the meaning or significance of a particular instrument. Also, the author's refusal to engage in speculation or argument will inevitably mean that those seriously concerned with a particular point will have to seek further enlightenment elsewhere. (In this connexion, it is unfortunate that the bibliography is so short.) Nevertheless, this volume will undoubtedly prove to be an extremely valuable reference source.

Maurice Mendelson

Maurice Mendelson is fellow of a St John's College, Oxford.

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 - French Language.
 - French Economic Institutions.
- Candidates should possess a relevant doctorate; must be competent to lecture in French and to take an active part in language teaching at all levels of the undergraduate programme; and should be prepared to offer courses at postgraduate level. One post is available under the 'New Blood' scheme and another will therefore be devoted mainly to research in the early years, with a reduced teaching programme. A second post is available which will involve commitments in both teaching and research.

DEPARTMENT OF MECHANICAL ENGINEERING

Application of Microprocessors (Ref. 552/156)
The successful candidate would join a small but active team that has been developing a strong base of capability in the microprocessor control of electrohydraulic and electrical interface devices for applying power to a variety of mechanisms.

One aspect of the work would be of interest to Control Engineers or to other Mechanical or Electrical Engineers who would like to widen their experience into digital control systems; the other aspect of the work would be of interest to engineers or physicists with a background in computers or microprocessors, or to computer scientists, wishing to work on advanced software for the future control of machinery.

DEPARTMENT OF PHARMACY Toxicology (Ref. 553/156)

Post-doctoral candidates with a suitable background in biology, biochemistry, pathology or pharmacology are encouraged to apply. The successful applicant will be expected to have a research interest in 'Mechanisms of Drug Toxicity'. Opportunities exist for collaboration with members of a group studying the toxicity of antineoplastic agents, N-methyl containing drugs and aminoglycoside antibiotics.

Candidates should normally be aged 35 years or under. Appointments will be for a period of three years initially with the possibility of renewal, or subsequent transfer to a continuing appointment. Initial salary will be within and up to the maximum of this range £6,375 p.a. to £13,500 p.a. Application forms and further particulars may be obtained from the Staff Officer (recruiting the appropriate person), University of Aston in Birmingham, Gosh Green, Birmingham B4 7ET. (Tel. 021-359 3611 Ext. 4899). Closing date: 3rd June, 1983.

Coláiste na hOllscoile Corcaigh University College Cork

ACCOUNTING

Applications are invited for three full-time permanent posts as Statutory Lecturer in the Department of Accounting. The salary range is: IR£15,457-IR£19,178 p.a. Application forms and further details of the posts may be obtained from the undersigned. Latest date for receipt of applications is Wednesday, 28th May, 1983.

M. F. Kelleher, Secretary

UNIVERSITY OF GLASGOW

- CHAIR IN ELECTRONIC SYSTEMS
- SECOND CHAIR OF COMPUTING SCIENCE

Applications are invited for two new Chairs as follows:

(1) DEPARTMENT OF ELECTRONICS AND ELECTRICAL ENGINEERING

The successful applicant will be expected to provide academic leadership in research and teaching in Electronic Systems including the introduction of a proposed new Honours Degree Structure in Electronic Systems and Microcomputer Engineering.

The applicant should have worked in Digital Electronics and be conversant with the application of Microcomputers as an integral part of engineering systems; a background of industrial collaboration would be an advantage.

The Department has an established reputation for research in the industrial applications of Microcomputing Systems, Control Systems and Pattern Recognition, Integrated Optics and Optical Communications. The person appointed would be expected to complement these activities. (Ref. No. 78742).

(2) DEPARTMENT OF COMPUTING SCIENCE

The successful applicant will be expected to have experience in some area of computer systems design and implementation. The Department has special interests in software engineering and computer graphics and it is hoped that the applicant will have interests in one of these topics or in a related computer systems area such as distributed processing, process control or computer architecture. (Ref. No. 78743).

The appointments will be made from 1st October 1983 or other mutually convenient date.

Further particulars of each post may be obtained from the Secretary of the University Court (Room 18), University of Glasgow, Glasgow G12 8QQ with whom applications (18 copies) 1 copy from overseas applicants) should be lodged on or before 27th May 1983. The names of three referees should be given.

In reply please quote the relevant Ref. Number.

Coláiste na hOllscoile Corcaigh University College Cork

ZOOLOGY

Applications are invited for two full-time posts as Assistant Lecturer or College Lecturer in the Department of Zoology.

The salary scales are:
College Lecturer - IR£10,677-IR£12,460 (bar) - IR£12,614-IR£15,998 p.a.
Assistant Lecturer - IR£8,261-IR£10,078 p.a.

Application forms and further details of the posts may be obtained from the undersigned. Latest date for receipt of applications is Friday 20th May, 1983.

M. F. Kelleher, Secretary

UNIVERSITY OF NOTTINGHAM CHAIR OF COMPUTER SCIENCE

Applications are invited for the newly-established Chair in Computer Science within the Department of Mathematics. Salary will be within the professional range. Application forms and further particulars, returnable not later than 31st May 1983, may be obtained from the Staff Appointments Officer, University of Nottingham, University Park, Nottingham NG7 2RD. Ref No. 856.

Universities continued

THE UNIVERSITY OF AUCKLAND New Zealand

BOTANY - LECTURESHIPS/SENIOR LECTURESHIP

Closing Date: 10th June, 1983
Applicants should hold, or be nearing completion of a PhD. Preference will be given to those with research experience in some branch of genetics, especially plant breeding/breeding systems, genetics of diseases, resistance, cytology; or in plant pathology, especially in soil borne diseases, soils, or disease resistance.

CHEMISTRY - LECTURESHIP IN ANALYTICAL CHEMISTRY

Closing Date: 20th June, 1983
Applicants should have a PhD or equivalent and have a major interest in some aspect of Analytical Chemistry.

COMPUTER SCIENCE - LECTURESHIP

Closing Date: 30th June, 1983
Applicants should be suitably qualified with teaching and research interests in one or more of computer architecture, systems software, computer networks, programming languages, computational complexity, numerical analysis, artificial intelligence, computer graphics, database systems and software engineering.

ECONOMICS - LECTURESHIPS (2)

Closing Date: 30th June, 1983
Applicants should have a PhD or equivalent research experience.

One appointment will be made in the field of industrial economics and the other in any of the major fields of Economics including econometrics, but preference may be given to those willing to teach introductory statistics.

MATHEMATICS AND STATISTICS - LECTURESHIP

Closing Date: 29th July, 1983
Applicants should have postgraduate qualifications and proven research interests. Applications will be considered from those with qualifications and experience in any field of Pure and Applied Mathematics and Statistics. Careful consideration will be given to teaching records.

OPTOMETRY - LECTURESHIP/SENIOR LECTURESHIP

Closing Date: 30th June, 1983
Applicants should be Optometrists with a higher degree in Optometry or Visual Science. A background in optics or physiological optics would be an advantage.

PHILOSOPHY - LECTURESHIP

Closing Date: 15th September, 1983
Applicants must have had postgraduate training and a postgraduate degree is desirable. Applications will be considered from those with teaching and research interests in any field of philosophy but preference may be given to those in the areas of Continental Philosophy or Ethics and Political Philosophy.

SOCIOLOGY - ASSOCIATE-PROFESSORSHIP

Closing Date: 28th August, 1983
Applicants should be well qualified with special interest in any branch of Sociology but some preference may be given to those with strong teaching and research interests in one or more of deviance and social problems, sex and gender relations, sociology of development.

Commanding salaries will be established within the appropriate scale. Present salary ranges are:
Senior Lecturer: £23,700-£27,000 p.a.
Associate Professor: £27,000-£34,387 p.a.
Lecturers: £22,160-£26,884 p.a.
Conditions of Appointment and Method of Application are available from the Assistant Registrar (Academic Appointments), University of Auckland, Private Bag, Auckland, New Zealand, or from the Association of Commonwealth Universities (Appointments), 35 Gordon Square, London WC1H 0PF. Applications, in accordance with Method of Application, should be forwarded as soon as possible but not later than the closing dates stated.

UNIVERSITY OF STRATHCLYDE

RESEARCH OPPORTUNITIES IN THE DEPARTMENT OF MECHANICS OF MATERIALS

Several awards have recently been made to the Department giving the following opportunities for research staff or students for a period of three years:

RESEARCH ASSISTANT

An SERC PhD Grant to investigate problems associated with mountings and supports for fibre reinforced composite pressure vessels leads to the recruitment of a Research Assistant. Both experimental and theoretical studies would be involved. A sound engineering background is essential preferably with experience in the composite field. An appreciation of Finite Element analysis techniques would be an advantage.
Government of Range IA (£8,375-£11,105 p.a.) with initial placing up to £9,840 depending on age, qualifications and experience. US\$ supervision fee.
Applications (quoting reference R12/83) should be lodged by 31 May 1983.

RESEARCH STUDENT

The studentship arises from a SERC PhD CASE award obtained in conjunction with NRC to investigate the tribology of laminated fibre reinforced composite structural sections. The research would be expected to lead to the award of the degree of PhD.
Remuneration is £2000 above the current SERC Studentship Scale.

BRITISH GAS CORPORATION RESEARCH SCHOLAR

The project will investigate the structural behaviour of double wall pipes used for the storage of liquefied natural gas and would be expected to lead to the award of the degree of PhD.
Remuneration is £2000 above the current SERC Studentship Scale.
Applications by each of the above are invited. Applicants should hold or expect to obtain a good honours degree in a suitable discipline from a British University. Further details can be obtained from the undersigned, to whom a full curriculum vitae should be sent, together with the names of 2 referees, in addition to the above other short term appointments may be available in the Department.
Dr W. M. Banks, Department of Mechanics of Materials, University of Strathclyde, 75 Rutherford Street, Glasgow G1 1JL.
Tel: 041-224 4400, ext. 553/5254.

AUSTRALIA

Applications are invited for the following posts, for which applications close on the date shown. SALARIES (unless otherwise stated) are as follows:

Senior Lecturer: \$44,677; Senior Lecturer: \$43,000-53,877; Lecturer: \$42,430-43,257. Further details and application procedures may be obtained from The Association of Commonwealth Universities (Appointments), 35 Gordon Square, London WC1H 0PF unless otherwise stated.

The University of New South Wales, Sydney

PROFESSOR OF ANALYTICAL CHEMISTRY

Equality of employment opportunity in University policy.
Applications are invited for appointment to a Chair of Analytical Chemistry in the School of Chemistry, Faculty of Science. The position will be available in mid 1984 following retirement of Professor L. B. Stynes.

Subject to consent by the University, the successful candidate will be expected to undertake a major research programme in the field of analytical chemistry.

The University reserves the right to fill any chair by invitation.

December 1983.

One appointment will be made in the field of industrial economics and the other in any of the major fields of Economics including econometrics, but preference may be given to those willing to teach introductory statistics.

December 1983.

The University of Western Australia, Perth

LECTURER/SENIOR LECTURER IN ACCOUNTING AND/OR FINANCE

Applications are invited for appointment to the above position in the Department of Accounting and Finance. The level of appointment will depend on qualifications, research record and experience. The position is offered on a tenured basis subject to approval.

Applicants should have the ability to teach and research in accounting and/or finance and the Department is particularly interested in persons with an interest in the ability to develop the area of Information Systems with particular reference to computerized information systems as they relate to the development of efficient accounting information bases and the auditing of such systems. Applicants with other interests will also be considered. Applications should be submitted to the University of Western Australia, Perth, Western Australia 6000.

The Department of Accounting and Finance is located in the Faculty of Economics and Commerce and with the Department of Information Systems in the School of Commerce. The Department is responsible for teaching and research in the areas of Accounting, Finance, Taxation, Auditing, and Information Systems. The Department also has a strong research tradition in the areas of Accounting, Finance, Taxation, Auditing, and Information Systems. The Department is currently seeking applications for the above position. The successful candidate will be expected to undertake a major research programme in the field of accounting and/or finance.

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UNIVERSITY OF STRATHCLYDE DEPARTMENT OF BIOSCIENCE AND BIOTECHNOLOGY ADMINISTRATIVE ASSISTANT

Applications are invited from graduates for a post of Administrative Assistant in the Department of Bioscience and Biotechnology. The appointee will be concerned with the administration of this large department, at least in the first instance, but will be on the staff of the Registrar. Preference will be given to those with previous administrative experience.

Appointments will be on grade 1A of the administrative scales (£8,375-£11,105 per annum) with initial placing according to age, qualifications and experience. US\$ supervision fee.

Applications (two copies) including the names and addresses of three referees and quoting reference 21/83 should be lodged by 31 May, 1983 with the Academic Staff Office, McCann Building, 11 Richmond Street, Glasgow G1 1XQ, from where further particulars may be obtained on receipt of a 6" x 4" self-addressed envelope.

Appointments will be made in the field of industrial economics and the other in any of the major fields of Economics including econometrics, but preference may be given to those willing to teach introductory statistics.

December 1983.

One appointment will be made in the field of industrial economics and the other in any of the major fields of Economics including econometrics, but preference may be

Universities continued

UNIVERSITY OF SOUTHAMPTON

Department of Electronics

Information Technology Microelectronics Mainstream Electronics

Applications are invited for five Lectureships in the above fields which are available from September/October 1983 as a result of additional funding from the University Grants Committee and the career progression of the existing staff of this large and active Department.

Candidates should have a good first degree in electronic engineering or a related discipline and relevant postgraduate experience in the

suitable topic - preferably to PhD level. Salary for these permanent posts will be within a scale rising to £13,505 (under review). Good relocation expenses. Further particulars may be obtained from D. A. S. Copland, The University, Southampton, SO9 5NH. Quote Ref: 2003/THES. Closing date for applications will be 31 May, 1983.

University of Cambridge Faculty of History UNIVERSITY ASSISTANT LECTURER IN MEDIEVAL ENGLISH ECONOMIC AND SOCIAL HISTORY

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of History. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of History, University of Cambridge, 100 Brook Road, Cambridge CB2 3RQ. Closing date 31 May 1983.

University of Leicester TEMPORARY LECTURESHIP IN EARLY MODERN EUROPEAN HISTORY

Applications are invited for a temporary Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of History. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of History, University of Leicester, 100 Brook Road, Leicester LE1 7RH. Closing date 31 May 1983.

University of Hong Kong (Non-Chinese) SENIOR LECTURESHIP IN OBSTETRICS AND Gynaecology

Applications are invited for a Senior Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of Obstetrics and Gynaecology. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Obstetrics and Gynaecology, University of Hong Kong, 77 Sheung Wan Road, Hong Kong. Closing date 31 May 1983.

University of Hong Kong (Non-Chinese) SENIOR LECTURESHIP IN OBSTETRICS AND Gynaecology

Applications are invited for a Senior Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of Obstetrics and Gynaecology. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Obstetrics and Gynaecology, University of Hong Kong, 77 Sheung Wan Road, Hong Kong. Closing date 31 May 1983.

University College Cardiff Department of Pure Mathematics LECTURESHIP

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of Pure Mathematics. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Pure Mathematics, University College Cardiff, 100 Brook Road, Cardiff CF1 1AT. Closing date 31 May 1983.

The University of Leeds Department of Chinese Studies LECTURER

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of Chinese Studies. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Chinese Studies, University of Leeds, 100 Brook Road, Leeds LS2 9JT. Closing date 31 May 1983.

The University of Manchester Department of Russian LECTURER IN RUSSIAN

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of Russian. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Russian, University of Manchester, 100 Brook Road, Manchester M13 9PL. Closing date 31 May 1983.

Monash University Australia Department of Electrical Engineering LECTURESHIP CONTINUING

Applications are invited for a continuing Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of Electrical Engineering. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Electrical Engineering, Monash University, 100 Brook Road, Victoria 3168. Closing date 31 May 1983.

The Australian National University Department of Prehistory and Archaeology LECTURESHIP

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of Prehistory and Archaeology. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Prehistory and Archaeology, Australian National University, 100 Brook Road, Canberra ACT 2601. Closing date 31 May 1983.

The University of Leeds Department of Chinese Studies LECTURER

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of Chinese Studies. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Chinese Studies, University of Leeds, 100 Brook Road, Leeds LS2 9JT. Closing date 31 May 1983.

University of Keele FREE CHURCH CHAPLIN

Applications are invited for a Free Church Chaplain in the above subject. The successful candidate will be expected to provide pastoral care and conduct services in the Free Church. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Free Church, University of Keele, 100 Brook Road, Keele ST5 5BG. Closing date 31 May 1983.

University of Durham Department of English LECTURESHIP IN ENGLISH LANGUAGE

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of English. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of English, University of Durham, 100 Brook Road, Durham DH1 1TA. Closing date 31 May 1983.

University of Leicester Faculty of Law LECTURESHIP IN LAW 'NEW BLOOD'

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Faculty of Law. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Faculty of Law, University of Leicester, 100 Brook Road, Leicester LE1 7RH. Closing date 31 May 1983.

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Faculty of Law. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Faculty of Law, University of Leicester, 100 Brook Road, Leicester LE1 7RH. Closing date 31 May 1983.

University of London Goldsmiths' College Department of German HALF TIME TEMPORARY LECTURESHIP IN GERMAN

Applications are invited for a half-time temporary Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of German. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of German, Goldsmiths' College, University of London, 100 Brook Road, London E4 3DF. Closing date 31 May 1983.

The University of Manchester Department of Mathematics LECTURESHIP

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of Mathematics. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Mathematics, University of Manchester, 100 Brook Road, Manchester M13 9PL. Closing date 31 May 1983.

The University of Manchester Department of Mathematics LECTURESHIP

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of Mathematics. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Mathematics, University of Manchester, 100 Brook Road, Manchester M13 9PL. Closing date 31 May 1983.

The University of Manchester Department of Mathematics LECTURESHIP

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The University of Manchester Department of Mathematics LECTURESHIP

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of Mathematics. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Mathematics, University of Manchester, 100 Brook Road, Manchester M13 9PL. Closing date 31 May 1983.

University of Manchester Faculty of Law LECTURESHIP IN COMPUTER SCIENCE

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Faculty of Law. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Faculty of Law, University of Manchester, 100 Brook Road, Manchester M13 9PL. Closing date 31 May 1983.

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Faculty of Law. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Faculty of Law, University of Manchester, 100 Brook Road, Manchester M13 9PL. Closing date 31 May 1983.

University of London Goldsmiths' College Department of German HALF TIME TEMPORARY LECTURESHIP IN GERMAN

Applications are invited for a half-time temporary Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of German. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of German, Goldsmiths' College, University of London, 100 Brook Road, London E4 3DF. Closing date 31 May 1983.

The University of Manchester Department of Mathematics LECTURESHIP

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of Mathematics. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Mathematics, University of Manchester, 100 Brook Road, Manchester M13 9PL. Closing date 31 May 1983.

The University of Manchester Department of Mathematics LECTURESHIP

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of Mathematics. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Mathematics, University of Manchester, 100 Brook Road, Manchester M13 9PL. Closing date 31 May 1983.

The University of Manchester Department of Mathematics LECTURESHIP

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of Mathematics. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Mathematics, University of Manchester, 100 Brook Road, Manchester M13 9PL. Closing date 31 May 1983.

The University of Manchester Department of Mathematics LECTURESHIP

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of Mathematics. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Mathematics, University of Manchester, 100 Brook Road, Manchester M13 9PL. Closing date 31 May 1983.

University of Kent at Canterbury Faculty of Science TEMPORARY LECTURESHIP IN LAW

Applications are invited for a temporary Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Faculty of Science. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Faculty of Science, University of Kent at Canterbury, 100 Brook Road, Canterbury CT2 7NF. Closing date 31 May 1983.

Applications are invited for a temporary Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Faculty of Science. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Faculty of Science, University of Kent at Canterbury, 100 Brook Road, Canterbury CT2 7NF. Closing date 31 May 1983.

University of London School of Oriental and African Studies LECTURESHIP IN LAW

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the School of Oriental and African Studies. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, School of Oriental and African Studies, University of London, 100 Brook Road, London WC1E 7HU. Closing date 31 May 1983.

The University of Manchester Department of Mathematics LECTURESHIP

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of Mathematics. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Mathematics, University of Manchester, 100 Brook Road, Manchester M13 9PL. Closing date 31 May 1983.

The University of Manchester Department of Mathematics LECTURESHIP

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of Mathematics. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Mathematics, University of Manchester, 100 Brook Road, Manchester M13 9PL. Closing date 31 May 1983.

The University of Manchester Department of Mathematics LECTURESHIP

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of Mathematics. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Mathematics, University of Manchester, 100 Brook Road, Manchester M13 9PL. Closing date 31 May 1983.

The University of Manchester Department of Mathematics LECTURESHIP

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of Mathematics. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Mathematics, University of Manchester, 100 Brook Road, Manchester M13 9PL. Closing date 31 May 1983.

Universities cont

The University of Wales Aberystwyth Department of Physics LECTURESHIP IN MICROELECTRONICS

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of Physics. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Physics, University of Wales Aberystwyth, 100 Brook Road, Aberystwyth SY23 3DA. Closing date 31 May 1983.

The University of London School of Oriental and African Studies LECTURESHIP IN LAW

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the School of Oriental and African Studies. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, School of Oriental and African Studies, University of London, 100 Brook Road, London WC1E 7HU. Closing date 31 May 1983.

The University of Manchester Department of Mathematics LECTURESHIP

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of Mathematics. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Mathematics, University of Manchester, 100 Brook Road, Manchester M13 9PL. Closing date 31 May 1983.

The University of Manchester Department of Mathematics LECTURESHIP

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The University of Manchester Department of Mathematics LECTURESHIP

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The University of Manchester Department of Mathematics LECTURESHIP

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of Mathematics. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Mathematics, University of Manchester, 100 Brook Road, Manchester M13 9PL. Closing date 31 May 1983.

Ulster: The New University Applications are invited for the following posts: REF: 83/48 TEMPORARY LECTURESHIP IN HUMAN BIOLOGY (MEDICAL SCIENCE)

Applications are invited for a temporary Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of Human Biology. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Human Biology, The New University, 100 Brook Road, Belfast BT1 3NF. Closing date 31 May 1983.

Ulster: The New University TEMPORARY LECTURESHIP IN PSYCHOLOGY

Applications are invited for a temporary Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of Psychology. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Psychology, The New University, 100 Brook Road, Belfast BT1 3NF. Closing date 31 May 1983.

The University of Sheffield LECTURESHIP IN CHEMISTRY

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of Chemistry. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Chemistry, University of Sheffield, 100 Brook Road, Sheffield S10 2TN. Closing date 31 May 1983.

The University of Manchester Department of Mathematics LECTURESHIP

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of Mathematics. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Mathematics, University of Manchester, 100 Brook Road, Manchester M13 9PL. Closing date 31 May 1983.

The University of Manchester Department of Mathematics LECTURESHIP

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of Mathematics. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Mathematics, University of Manchester, 100 Brook Road, Manchester M13 9PL. Closing date 31 May 1983.

The University of Manchester Department of Mathematics LECTURESHIP

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of Mathematics. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Mathematics, University of Manchester, 100 Brook Road, Manchester M13 9PL. Closing date 31 May 1983.

Brunei University Department of Metallurgy RESEARCH FELLOWSHIP

Applications are invited for a Research Fellowship in the above subject. The successful candidate will be expected to conduct research in the Department of Metallurgy. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Metallurgy, Brunei University, 100 Brook Road, Uxbridge UB8 3PH. Closing date 31 May 1983.

Brunei University TEMPORARY LECTURESHIP IN PSYCHOLOGY

Applications are invited for a temporary Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of Psychology. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Psychology, Brunei University, 100 Brook Road, Uxbridge UB8 3PH. Closing date 31 May 1983.

The University of Sheffield LECTURESHIP IN CHEMISTRY

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of Chemistry. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Chemistry, University of Sheffield, 100 Brook Road, Sheffield S10 2TN. Closing date 31 May 1983.

The University of Manchester Department of Mathematics LECTURESHIP

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The University of Manchester Department of Mathematics LECTURESHIP

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The University of Manchester Department of Mathematics LECTURESHIP

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The University of Manchester Department of Mathematics LECTURESHIP

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The University of Leeds Department of Textile Industries Research Fellow

Applications are invited for a Research Fellowship in the above subject. The successful candidate will be expected to conduct research in the Department of Textile Industries. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Textile Industries, University of Leeds, 100 Brook Road, Leeds LS2 9JT. Closing date 31 May 1983.

The University of Manchester Department of Mathematics LECTURESHIP

Applications are invited for a Lectureship in the above subject. The successful candidate will be expected to teach and supervise students in the Department of Mathematics. The salary scale is £13,505 to £15,000 (under review). Further particulars may be obtained from the Secretary, Department of Mathematics, University of Manchester, 100 Brook Road, Manchester M13 9PL. Closing date 31 May 1983.

The University of Manchester Department of Mathematics LECTURESHIP

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The University of Manchester Department of Mathematics LECTURESHIP

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The University of Manchester Department of Mathematics LECTURESHIP

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Bristol Polytechnic Computer Aided Engineering

Three senior appointments in Computer Aided Engineering have been created by the Department of Engineering Integrating its academic planning with that of two other Departments: SCIENCE and also COMPUTER STUDIES & MATHEMATICS. Housed in a new building, the integration will cover joint course planning and will influence research developments.

Associate Head (Grade V) ref L/4 £14879 - £16308 pa

Readership ref L/8 - possibly with a special reference to microelectronics

Principal Lecturer ref L/6 - with particular reference to Computer Aided Design

Salary for the above two posts: £11691 - £13290 (bar) - £16108 pa. All posts are available from 1st September 1983 and demand candidates who are highly qualified - both academically and professionally - and ideally possess relevant industrial experience. Substantial research experience is essential for the Associate Head and Reader appointments. All salaries will be fixed at a point on the scale appropriate to previous service and experience. For further details and an application form please contact the Personnel Office, Bristol Polytechnic, Colthorpe Lane, Fenchurch, Bristol, Telephone Bristol (0272) 656261, extension 216 or 217. Closing date 15th May 1983. Please quote reference number in all communications.

Applications are invited for the following Lecturer 'A' posts: Post 993 LECTURER 'A' IN PHYSIOTHERAPY A fully qualified physiotherapist to teach on the BSc (Hons) degree course in Physiotherapy. The successful applicant will be concerned with the development of in-service courses/provision for practising physiotherapists. Post 10/83 LECTURER 'A' IN STATISTICS COMPUTING A graduate in Statistics and/or Mathematics experience in Computing studies to teach statistics to students on higher diploma, degree and postgraduate courses. Post 11/83 LECTURER 'A' IN BUSINESS STUDIES A graduate in Business Studies with expertise in Accounting, Economics and Management Accounting to contribute to the teaching and development of courses in the College and Home Economics at higher diploma, degree and postgraduate. Salary Scale: £7,500-£12,861. Application forms and further particulars available from The Secretary and Treasurer, Staffing, at the address or telephone number below. Closing date for above posts: 28th May, 1983.

THE QUEEN'S COLLEGE GLASGOW 1 Park Drive, Glasgow, G3 7LP. Tel: 041-334 8141. A Scottish Central Institution.

Portsmouth Polytechnic PROFESSOR/HEAD OF DEPARTMENT OF BIOLOGICAL SCIENCES

Applications are invited for the above post which has fallen vacant due to the appointment of the present Head to the post of Assistant Chief Officer at the Council for National Academic Awards. This large Department offers two BSc

Polytechnics continued



Faculty of Technology

Applications are invited from well qualified candidates with appropriate research, industrial and/or commercial experience for the following posts:

Department of Communication Engineering

PRINCIPAL LECTURER

In Communication Engineering
Applicants should have an interest in the theory and practice of digital communications and satellite communications.

Department of Mathematics, Statistics and Computing

PRINCIPAL LECTURER
SENIOR LECTURER/
LECTURER II

In Mathematics
Applicants should have experience in a branch of applicable mathematics. Experience in mathematical modelling, numerical analysis, theory and/or continuum mechanics may be an advantage.

LECTURER II

In Statistics
Applicants should have specialist knowledge in time series analysis, experimental design and/or stochastic and related processes although other areas will be considered.

Department of Architecture

STUDIO TEACHER

(Lecturer II) In Architecture
(short term appointment)
This post may be filled by one individual for a full year or possibly by three individuals for one term each. Landscape design is a priority but applicants should state their teaching preference.

Salary: Principal Lecturer £11,931-£15,018
Senior Lecturer £10,173-£12,818
Lecturer II £8,855-£11,022
(normally with advancement to £12,818)

Application forms to be returned by Friday 27th May, 1983 can be obtained together with further particulars from the Personnel Officer Plymouth Polytechnic.

Cresk Circus, Plymouth, Devon, PL4 8AA.

Portsmouth Polytechnic

PROFESSOR/HEAD
OF
SCHOOL OF PHARMACY

Applications are invited for the above post which falls vacant in September on the retirement of the present Head. The School offers three Honours degree courses spanning Pharmacy, Pharmacology and medical laboratory sciences and there is a substantial research programme.

Applicants should be registered pharmacists, preferably possessing a higher degree and relevant experience in teaching, administration and research.

It is hoped that the person appointed will be eligible for the conferment of the title Professor.
Commencing salary will be at the appropriate point within the Grade VI scale: £13,857-£17,490 per annum (under review).
Further particulars and application forms from the Personnel Office (T8), Portsmouth Polytechnic, Nuffield Centre, St Michaels Road, Portsmouth PO1 2ED, tel: 0705 828451, to whom completed applications should be returned by 28th May, 1983.

ULSTER POLYTECHNIC

FACULTY OF ARTS

SENIOR LECTURER

OR

LECTURER II - FURNITURE DESIGN

(Final term appointment until 30 September 1984)
Salary: Senior Lecturer £10,173-£12,818
Lecturer II £8,855-£11,022

Creative and stimulating design is required at Ulster for the BA (Hons) Furniture Design course.
Applicants should be graduate designers with some teaching experience and hold an appropriate BA Hons or equivalent qualification.
The Polytechnic is a direct grant institution with an independent Board of Governors. It opened in 1971 and has a student population of some 8,100. There is a scheme of assistance with transfer.

Further particulars and application forms which must be returned by 30 May 1983 may be obtained by telephoning 0281 511111, ext. 2243 or by writing to the Recruitment Officer, Ulster Polytechnic, Stranmillis Road, Newry, Co. Down BT27 6QZ.

GLASGOW COLLEGE
of TECHNOLOGY

Glasgow College of Technology, a Polytechnic Institution of H.E., invites applications for the following post:

SENIOR LECTURER 'A'
IN MATHEMATICS

Applications are invited from graduate mathematicians with special interest in the teaching and the applications of mathematics to business. The successful candidate will assist in the development of an Honours degree course in this field. Applicants should have appropriate industrial and/or teaching experience. Research interests would be an advantage.

Salary: £11,700-£12,867 (bar) - £14,748.
Application forms from the Establishments Officer, Glasgow College of Technology, Cowcaddens Road, Glasgow G4 0BA. Tel: 041-332 7080, to whom applications should be returned within 14 days of the appearance of this advertisement.
E. MILLER, Director of Education

DEPARTMENT OF COMPUTING AND
MICROPROCESSOR APPLICATIONSLECTURING
OPPORTUNITIES
IN COMPUTING

Vacancies exist at Principal Lecturer and Lecturer Grade II/Senior Lecturer level. At least one of those appointed must have teaching experience at honours degree level in Data Processing and Systems. Other candidates should offer expertise in one of the following fields: database, real-time systems, networking, program design and system design.

Salary scales:
Principal Lecturer £11,931-£15,018
Lecturer Grade II/Senior Lecturer £8,855-£12,818
Further details and form of application from the Staff Officer, Trent Polytechnic, Burton Street, Nottingham NG1 4SU. Closing date 13th May, 1983.

DUNDEE COLLEGE OF TECHNOLOGY
DEPARTMENT OF PHYSICSScience and Engineering Research Council CASE
Studentship on Electronic Transport Properties of
Amorphous Silicon

Applications for the above studentship are invited from graduates in Physics, Science/Electronic Engineering or other relevant disciplines. Candidates should possess, or expect to obtain in the coming year, a minimum qualification of an Upper Second Class Honours Degree.
The project entails the preparation and characterization by means of a range of electronic transport measurements of the films of amorphous silicon. These materials have considerable commercial significance in such fields as solar energy conversion, thin film active devices, etc. The project will be carried out in collaboration with Philips Research Laboratories, and will be directed by Dr. J. M. Marshall and Dr. C. M. M. Macleod.

Application form and further particulars may be obtained from the Personnel Officer, Dundee College of Technology, Bell Street, Dundee DD1 1HQ. In which completed applications should be returned by 23 May 1983.



PRO-RECTORS

The Polytechnic of Central London wishes to appoint three Pro-Rectors. Applications are invited from suitably qualified candidates with appropriate experience in higher education, research and leadership qualities. PCL is a broad-based institution at the forefront of academic and professional education, research and continuing education. The Schools of the Polytechnic comprise: Architecture, Engineering, Science, Environment, Languages, Law, Management, Social Science and Social Sciences & Business Studies.

Salary on Vice Principal scale within the range £23,155-£23,970 per annum inclusive of London Allowance (under review from April 1983).

Further details are available from the Establishments Officer, PCL, 208-210 Regent Street, London W1R 6AL. Tel: 01-262 2020, Ext. 212. Closing date: 31 May 1983.

ROBERT BORDON'S
INSTITUTE OF TECHNOLOGY
SCHOOL OF SOCIAL STUDIES
RESEARCH
STUDENTS

Applications are invited for a Research Studentship in the School of Social Studies, commencing September 1983. The School is responsible for a full year BA Course leading to the award of a BA in Public Administration or a BA in Public Administration and Applied Social Studies, both provided for the award of the award of Qualification in Social Studies.

The person appointed must have a good honours degree and may be eligible for a higher degree. He/she will be required to undertake research in the area of social studies and to act as a tutor in the School.

The Research Student will be directly accountable to the Head of School of Social Studies and will be supervised by a member of the School of Social Studies. Further information may be obtained from Mr. P. J. Woodhouse, Head of School of Social Studies, Robert Gordon's Institute of Technology, Aberdeen, AB9 1QJ.

DUNDEE COLLEGE OF TECHNOLOGY
Department of Electrical & Electronic Engineering

LECTURESHIP

Applicants should possess a good honours degree in electrical and/or electronic engineering together with appropriate industrial and/or research experience. Applications would be particularly welcomed from candidates having experience in power electronics, digital electronics and microprocessor/computer applications or digital communications and signal processing. Salary scale (under review): £7,955-£11,700 (bar) - £12,861, with initial placing depending upon approved previous experience. Financial assistance towards the cost of removal expenses may be payable.
Further particulars and application forms may be obtained from the Personnel Officer, Dundee College of Technology, Bell Street, Dundee DD1 1HQ, to whom completed application forms should be returned by 20 May 1983.

SHEFFIELD CITY POLYTECHNIC
DEPARTMENT OF ECONOMICS
AND BUSINESS STUDIES

LECTURER II IN BUSINESS POLICY

The successful candidate will join a team who are responsible for teaching Business Policy on degree and diploma courses in Business Studies. Applicants should be able to demonstrate a high level of appreciation of the theoretical and practical aspects of Business Policy and to show an active interest in research and consultancy. They should normally have a good first degree and a relevant postgraduate qualification.
Salary Scale: £8,855-£11,022

Under current salary regulations and subject to satisfactory performance, the successful candidate can normally expect incremental progression to the Senior Lecturer Scale of which the present maximum is £12,818.

Application forms and further details from the Personnel Officer (Dept. 7), Sheffield City Polytechnic, Pinfold Square, Sheffield S18 8PL or by post to 30511, Ext. 347. Completed forms to be returned by 15th May, 1983. Sheffield City Polytechnic is an Equal Opportunities Employer.

Middlesex
PolytechnicSchool of Law
Part-time
Law
Lectureships

Applications are invited from suitably qualified applicants for the academic session commencing September, 1983.
For further details and an application form please write to: Dr A. J. Hunt, Middlesex Polytechnic, The Burroughs, London NW4 4BT.

Applicants for both part-time and full-time positions should have a higher degree and some experience of teaching law. A range of degree courses and research opportunities in areas of commercial law, contract law, tort law, criminal law, and administrative law are available. The successful candidate will be expected to contribute to the development of the School and to the wider community.

Brighton Polytechnic
Department of PharmacyLECTURER IN
BIOLOGYTEMPORARY
LECTURER IN
PHARMACOLOGY

1. Lecturer in Biology
Candidates should have a degree in Biology or a related discipline. The successful candidate will be expected to contribute to the development of the School and to the wider community.

2. Temporary Lecturer in Pharmacology
To teach pharmacology and related subjects. The successful candidate will be expected to contribute to the development of the School and to the wider community.

Salary: Senior Lecturer £11,931-£15,018
Lecturer £8,855-£11,022
Further details and application forms may be obtained from the Deputy Head of Pharmacy, Brighton Polytechnic, Moulton Street, Brighton BN1 1QJ. Tel: 01273 551111. Closing date 17 May 1983.

Polytechnic of the
South Bank

SCHOOL OF MANAGEMENT

SENIOR LECTURER/
LECTURER GRADE IIIN ORGANISATION
ANALYSIS/PERSON-
NEL
MANAGEMENT

Applications are invited for the above post. The successful candidate will be expected to contribute to the development of the School and to the wider community.

Salary: Senior Lecturer £11,931-£15,018
Lecturer Grade II £8,855-£11,022
Further details and application forms may be obtained from the Deputy Head of Management, South Bank Polytechnic, 100 Abchurch Lane, London EC4N 3DF. Tel: 01-477 5511. Closing date 17 May 1983.

Polytechnics cont

Lancaster Polytechnic

School of Economics
and AccountingLECTURER II/
SENIOR LECTURER

(Post No. 557)

Lecturer II £8,855 - £11,022 per annum
Senior Lecturer £11,931 - £15,018 per annum
This school is responsible for courses at professional undergraduate and postgraduate levels. These include the B.A. Business Studies and B.A. Economics.

Applicants should have a suitable academic qualification in economics or accountancy. The successful candidate will be expected to contribute to the development of the School and to the wider community.

Salary: £8,855-£11,022
Under current salary regulations and subject to satisfactory performance, the successful candidate can normally expect incremental progression to the Senior Lecturer Scale of which the present maximum is £12,818.

Application forms and further details from the Personnel Officer (Dept. 7), Sheffield City Polytechnic, Pinfold Square, Sheffield S18 8PL or by post to 30511, Ext. 347. Completed forms to be returned by 15th May, 1983. Sheffield City Polytechnic is an Equal Opportunities Employer.

City of London
PolytechnicPRINCIPAL
LECTURER
SILVERSMITHING,
JEWELLERY &
ALLIED CRAFTS

The City of London Polytechnic is seeking to appoint a Principal Lecturer within its Department of Silversmithing, Jewellery and Allied Crafts. The successful candidate will be expected to contribute to the development of the School and to the wider community.

Applicants should have a suitable academic qualification in silversmithing, jewellery or allied crafts. The successful candidate will be expected to contribute to the development of the School and to the wider community.

Salary: £11,931-£15,018
Further details and application forms may be obtained from the Deputy Head of City of London Polytechnic, 100 Abchurch Lane, London EC4N 3DF. Tel: 01-477 5511. Closing date 17 May 1983.

Manchester
PolytechnicLECTURER II IN
HOME ECONOMICS
(two posts)

Applicants are invited from suitably qualified applicants for the academic session commencing September, 1983.
For further details and an application form please write to: Dr A. J. Hunt, Middlesex Polytechnic, The Burroughs, London NW4 4BT.

Applicants for both part-time and full-time positions should have a higher degree and some experience of teaching home economics. A range of degree courses and research opportunities in areas of home economics, food science, and textile technology are available. The successful candidate will be expected to contribute to the development of the School and to the wider community.

Salary: Senior Lecturer £11,931-£15,018
Lecturer £8,855-£11,022
Further details and application forms may be obtained from the Deputy Head of Home Economics, Manchester Polytechnic, 100 Abchurch Lane, London EC4N 3DF. Tel: 01-477 5511. Closing date 17 May 1983.

OPEN TECH
STAFF DEVELOPMENT AND TRAINING

OET has been commissioned by the Open Tech Unit of the Manpower Services Commission to provide a staff development, training and advisory support service for Open Tech projects until 31st March, 1986.

Leading Consultant

A Consultant is required to take responsibility for the day-to-day operation of the open service. The post will involve close liaison with staff of Open Tech projects as well as staff of the OET Open Tech Unit. The successful applicant will help identify the needs for staff development and training in individual Open Tech projects and will plan and implement workshops and other means to meet these needs.

Knowledge of learning materials design and development techniques, experience as a trainer in short intensive training courses, and experience as a training consultant are essential. Knowledge of one or more of open learning systems, industrial training arrangements, and applications of information technologies to training would be an advantage.
The appointment will commence as soon as possible and extend until 31st March, 1986.
The salary will be in the range £12,000-£15,000 per annum. Secondments will be considered.
Letters of application accompanied by a detailed curriculum vitae and the names and addresses of two referees should be sent to OET before 27th May, 1983.
Further details can be obtained from the Office Manager, OET, 3 Devonshire Street, London W1N 2BA (Tel: 01-580 7553).

OET Council for Educational Technology

PRINCIPAL
LECTURER:
MANUFACTURING or
PROCESSING

The department seeks to appoint a manufacturing or processing lecturer with extensive experience of modern manufacturing or processing methods. An excellent track record of achievement in industry, research or academic collaboration is essential.

The successful candidate will be required to give academic leadership in the field of manufacturing or processing, to establish and maintain strong research, consultancy and industrial collaboration activities.

A higher degree would be an advantage, but is not essential.

Salary: £11,931-£15,018
Further details and application forms may be obtained from the Deputy Head of Manufacturing or Processing, Manchester Polytechnic, 100 Abchurch Lane, London EC4N 3DF. Tel: 01-477 5511. Closing date 17 May 1983.

City of London
PolytechnicPRINCIPAL
LECTURER
SILVERSMITHING,
JEWELLERY &
ALLIED CRAFTS

The City of London Polytechnic is seeking to appoint a Principal Lecturer within its Department of Silversmithing, Jewellery and Allied Crafts. The successful candidate will be expected to contribute to the development of the School and to the wider community.

Applicants should have a suitable academic qualification in silversmithing, jewellery or allied crafts. The successful candidate will be expected to contribute to the development of the School and to the wider community.

Salary: £11,931-£15,018
Further details and application forms may be obtained from the Deputy Head of City of London Polytechnic, 100 Abchurch Lane, London EC4N 3DF. Tel: 01-477 5511. Closing date 17 May 1983.

Applicants should have a suitable academic qualification in silversmithing, jewellery or allied crafts. The successful candidate will be expected to contribute to the development of the School and to the wider community.

Salary: £11,931-£15,018
Further details and application forms may be obtained from the Deputy Head of City of London Polytechnic, 100 Abchurch Lane, London EC4N 3DF. Tel: 01-477 5511. Closing date 17 May 1983.

Administration

OPEN TECH

STAFF DEVELOPMENT AND TRAINING

OET has been commissioned by the Open Tech Unit of the Manpower Services Commission to provide a staff development, training and advisory support service for Open Tech projects until 31st March, 1986.

Leading Consultant

A Consultant is required to take responsibility for the day-to-day operation of the open service. The post will involve close liaison with staff of Open Tech projects as well as staff of the OET Open Tech Unit. The successful applicant will help identify the needs for staff development and training in individual Open Tech projects and will plan and implement workshops and other means to meet these needs.

Knowledge of learning materials design and development techniques, experience as a trainer in short intensive training courses, and experience as a training consultant are essential. Knowledge of one or more of open learning systems, industrial training arrangements, and applications of information technologies to training would be an advantage.
The appointment will commence as soon as possible and extend until 31st March, 1986.
The salary will be in the range £12,000-£15,000 per annum. Secondments will be considered.
Letters of application accompanied by a detailed curriculum vitae and the names and addresses of two referees should be sent to OET before 27th May, 1983.
Further details can be obtained from the Office Manager, OET, 3 Devonshire Street, London W1N 2BA (Tel: 01-580 7553).

Applicants should have a suitable academic qualification in silversmithing, jewellery or allied crafts. The successful candidate will be expected to contribute to the development of the School and to the wider community.

OET Council for Educational Technology

Department of Education and Science

HM Inspector of Schools
Further and Higher EducationAgriculture and Horticulture
Catering and Food

Applications are invited from men and women, preferably aged between 35 and 45, for appointment as HM Inspectors. HM Inspectors provide a service of professional advice at the Department of Education and Science and normally carry out a general as well as a specialist assignment. This work primarily involves inspecting and advising educational institutions, but also includes consulting with local education authorities and contributing to in-service training.

Vacancies exist for inspectors specialising in: Agriculture and Horticulture and Catering and Food.

Applicants must have had considerable experience and responsibility in their specialist area and have an active interest in its applications. Appropriate academic qualifications, teaching and industrial/professional experience are essential. Starting salary is within the range £13,840-£19,930 (up to £1,220 higher in London). Promotion prospects.

Application forms (to be returned by 31 May 1983) and further information may be obtained from Mr E. D. Foster, Department of Education and Science, Room 18/17 Elizabeth House, 50 York Road, London SE1 7PH, telephone 01-928 9222, extensions 2786 or 2237. Please quote 4/83.

Colleges of Further Education

ST. MARY'S COLLEGE

Strawberry Hill, Twickenham

St. Mary's College is a Roman Catholic College of Higher Education and offers undergraduate courses leading to two-subject BA, BEd and BSc honours degrees of the University of Surrey, as well as a variety of postgraduate courses. Currently, courses leading to University of London qualifications are being phased out. The College has about 1,200 students, of whom approximately half are registered for BA/BSc degrees and half for the BEd degree.

Applications are invited for these appointments by Friday 13th May, 1983. Candidates should be well qualified, preferably with a higher degree and research experience or good school teaching experience.

Salary: £11,931-£15,018
Further details and application forms may be obtained from the Deputy Head of St. Mary's College, Strawberry Hill, Twickenham, Middlesex TW1 4BX.

HEADS OF
DEPARTMENT

HEAD OF DEPARTMENT OF HISTORY

Salary Scale: Burnham FE/HE

Head of Department Grade 5

HEAD OF DEPARTMENT OF ENGLISH

Salary Scale: Burnham FE/HE

Head of Department Grade 4 (Grade 5 under consideration)

HEAD OF DEPARTMENT OF FRENCH

Salary Scale: Burnham FE/HE

Head of Department Grade 4

HEAD OF DEPARTMENT OF PHYSICS

Salary Scale: Burnham FE/HE

Principal Lecturer

All plus Outer London Weighting Allowance. Further particulars from: The Principal, St. Mary's College, Strawberry Hill, Twickenham, Middlesex TW1 4BX.

LECTURER IN MODERN
EUROPEAN LANGUAGES

Applications are invited for the above vacancy commencing in September 1983. The appointment will be made at Lecturer II level, Burnham Further Education Scale, salary range: £8,855-£11,022.

The successful candidate will be fluent in two European languages, preferably French and Spanish, and be familiar with modern linguistic theory, especially as applicable to the teaching of modern languages.

Candidates should preferably offer a PhD together with experience of teaching at degree level. Duties will include the initiation of a modern languages programme, teaching 15 hours per week, and academic advising of international students. A job description and further details of the College and its courses will be sent to all applicants.

Applicants are requested to send full curriculum vitae and the names of two referees to:

Dr Robert E. Kuehn
Academic Dean,
Richmond College,
Queen's Road,
Richmond,
Surrey TW9 0JP

The deadline for applications is 27th May, 1983.

Courses

St. Mary's College

Strawberry Hill, Twickenham

LECTURER IN
MATHEMATICS

The department runs a programme of undergraduate work for the degree of B.A. Mathematics. The successful candidate should possess a higher degree in Mathematics, and should preferably have experience of teaching at degree level.

The successful candidate will be expected to contribute to the development of the School and to the wider community.

Salary: £11,931-£15,018
Further details and application forms may be obtained from the Deputy Head of Mathematics, St. Mary's College, Strawberry Hill, Twickenham, Middlesex TW1 4BX.

Applicants should have a suitable academic qualification in mathematics. The successful candidate will be expected to contribute to the development of the School and to the wider community.

Salary: £11,931-£15,018
Further details and application forms may be obtained from the Deputy Head of Mathematics, St. Mary's College, Strawberry Hill, Twickenham, Middlesex TW1 4BX.

Colleges of Technology

SURREY EDUCATION COMMITTEE

NORTH EAST SURREY COLLEGE OF
TECHNOLOGY

Reigate Road, Ewell, Epsom, Surrey, KT17 3DS

Head of Department of
Biological Sciences

(Grade V Department)

Required for September 1983. The vacancy arises from the retirement of the existing Head of Department.

The work of the Department falls almost exclusively in the Advanced Further Education category. The Department offers part-time BSc Hons (CNA) in Biological Science, full-time and part-time MPhil courses for Part I and Part II, FILMS and TEC higher diploma and higher certificate in Applied Biology and Medical Laboratory Sciences. There is an active research school.

In addition to a good honours degree in Biology applicants should have a higher degree and academic/professional standing. Recent experience in biological research is essential as is a proven record of management of a team of science based graduates.

Salary: £11,931-£15,018
Further details and application forms may be obtained from the Deputy Head of North East Surrey College of Technology, Reigate Road, Ewell, Epsom, Surrey, KT17 3DS.

Applicants are invited for the following post to be filled with effect from 1st September, 1983.

DEPARTMENT OF APPLIED SCIENCE

Colleges of Technology cont

London Borough of Newham
East Ham College of Technology
High St. South, London, E6 4EK
Principal: Mr. R. H. Bishop
B.Sc. in Environmental Engineering

Department of Art and Design
Applications are invited from those with suitable professional practice and preferably with some teaching experience for the following posts:

LECTURER I - GRAPHIC DESIGN
To teach in DATEC Diploma courses. An understanding of design development in graphic design is essential. The post holder will be responsible for the following areas:

LECTURER I - 3D
To teach in the General Art and Design unit in Foundation Courses and to contribute to a co-ordinating role in the design unit in the 3D Design programme.

LECTURER II - GRAPHIC DESIGN
To teach up to DATEC Higher Diploma in Graphic Design. The post holder will be responsible for the following areas:

Selection under review - 1. LECTURER II - 3D - £11,000 plus London Allowance of £939 in each year.

Application forms and further details may be obtained from the Vice-Principal, East Ham College of Technology, East Ham, London E6 4EK.

Application forms and further details may be obtained from the Vice-Principal, East Ham College of Technology, East Ham, London E6 4EK.

Colleges of Higher Education

Ealing College of Higher Education
School of Economics and Business
LII IN COMPUTING STUDIES

Able to teach on B.A. Accounting Studies and B.A. Economics with other courses mainly of honours graduate level. The post holder should be a graduate with computing qualifications in computing, economics and business studies. The post holder should be a graduate with computing qualifications in computing, economics and business studies.

The post is available from 1st September 1983. Salary: £11,794 to £13,000, depending on experience. The post holder will be responsible for the following areas:

Application forms and further details may be obtained from the Vice-Principal, Ealing College of Higher Education, London, W5 5AF.

Application forms and further details may be obtained from the Vice-Principal, Ealing College of Higher Education, London, W5 5AF.

Hartfordshire County Council
Hartfordshire College of Higher Education
Applications are invited for the following posts:

LECTURER IN MATHEMATICS
This is a full-time permanent post. The post holder will be responsible for the following areas:

PART-TIME LECTURER IN TEXTILES
This will be a temporary part-time post. The post holder will be responsible for the following areas:

Application forms and further details may be obtained from the Vice-Principal, Hartfordshire College of Higher Education, London, W5 5AF.

Application forms and further details may be obtained from the Vice-Principal, Hartfordshire College of Higher Education, London, W5 5AF.

Application forms and further details may be obtained from the Vice-Principal, Hartfordshire College of Higher Education, London, W5 5AF.

Colleges of Higher Education continued

SCHOOL OF INFORMATION STUDIES

LECTURER II/SENIOR LECTURER/
PRINCIPAL LECTURER

The School of Information Studies has a vacancy for a lecturer able to lead an innovative CNAVA validated BA in Secretarial Studies degree and to make a major contribution towards determining the future direction of the work of the School.

Good academic qualifications in relevant field of study are prerequisite but the ability to take a comprehensive view of the nature of secretarial studies and of developments in information technology is also essential.

A number of vacancies also exists for lecturers in Systems Analysis and Design, able to offer specialist knowledge in applications such as Information Systems Management, Database, Communications Management and Networking.

LI £6,655-£11,022
SL £10,173-£11,984 (bar) - £12,616
PL £11,931-£13,290 (bar) - £15,018

Application forms and further details can be obtained from:

The Personnel Office,
Humberside College of Higher Education,
Ingleside Avenue, Hull HU6 7LU
Tel: (0482) 448508.

Completed applications must be received by no later than 18th May 1983.

HUMBERSIDE COLLEGE of Higher Education

Athrofa Gogledd-dd Cymru
The North Wales Institute of Higher Education

Celyn Road, Wrexham, Chwyd
SCHOOL OF EDUCATION - CONTINUING EDUCATION

LECTURER II IN MATHEMATICS AND MATHEMATICS EDUCATION

Applications are invited from well qualified and experienced graduates teachers to teach on Diploma of Higher Education, B.Ed. and Diploma courses. A strong interest in Mathematics education at all levels is required. Duties to commence on 1st September 1983. Informal enquiries may be made by telephoning Mr Graham Watts. Tel: Wrexham 359221, Ext. 271.

Further details and application form available from The Director of Management Services, The North East Wales Institute, Deeside, Chwyd. Tel: Deeside 817831, Ext. 271. Closing date for receipt of applications 20th May 1983.

the College of Ripon & York St John

COLLEGE CAREERS ADVISER/
SENIOR LECTURER
(£10,173-£12,616, under review)

Applications are invited from graduates with substantial experience of careers advisory work within higher education for the post of College Careers Adviser in this Church of England College of Higher Education, with effect from 1st September 1983.

Whilst the service is based at York, it also serves students on the Ripon Campus. The Careers adviser is currently supported by a full-time Information and Research Assistant and by appropriate secretarial assistance.

Further details and application form may be obtained from: The Principal, College of Ripon & York St John, Lord Mayor's Walk, York YO1 7EX to whom completed applications should be submitted to arrive not later than TUESDAY 31st May 1983.

HEAD OF DEPARTMENT OF BUSINESS AND MANAGEMENT STUDIES (GRADE V)

The Department of Business and Management Studies at BIHE is a large one. It has an annual intake of 100 students on its BEC Higher Diploma Course and an extensive range of other full-time, part-time and short courses, including Part I of a DMS. The Department provides an important input to many of the Institute's technological degree and higher diploma courses. Development of the Department, especially in terms of full-time short courses and additional contributions to our existing degree programmes, has high priority within the Institute's plans for the future.

BIHE is the second largest provider in the UK of AFE work outside the polytechnics and is also low cost. These facts, coupled with the quality of the work we undertake, lead us to look to the future with some confidence.

Applicants should be well qualified and experienced in an appropriate field and ideally also have research and industrial experience. The person appointed will need to demonstrate the possession of the significant managerial skills that are necessary to lead this large and complex department.

The appointment will be from September 1983. During the secondment of the current Head for the 1983/84 session the person appointed will manage the Department as Head Designate, assuming the full title in September 1984.

The salary for the post will be in the Grade V Head of Department range (£14,679 - £16,305 - under review).

Further particulars may be obtained from the Deputy Registrar to whom applications should be returned not later than 20th May 1983.

BOLTON INSTITUTE OF HIGHER EDUCATION
Deana Road, BOLTON BL3 5AB
Tel: 0204 28851

FACULTY OF ARCHITECTURE, ART & DESIGN

Applications are invited for the following posts:

PRINCIPAL LECTURER CRITICAL & THEORETICAL STUDIES L2/SI FILM STUDIES

PL £11,531-£13,290 (bar) - £15,018
SL £10,173-£11,984 (bar) - £12,616
L2 £6,655-£11,022

Full details and application forms may be obtained from:

The Personnel Office,
Humberside College of Higher Education,
Ingleside Avenue, Hull HU6 7LU
Tel: (0482) 448508

Completed applications must be received by no later than 18th May 1983.

HUMBERSIDE COLLEGE of Higher Education

Applications are invited for this key senior staff appointment from persons with qualities of academic leadership and design expertise.

HEAD OF SCHOOL - VISUAL COMMUNICATION DESIGN

Salary:
Burnham Grade V £14,679-£16,305

Full details and application forms may be obtained from: The Personnel Office, Humberside College of Higher Education, Ingleside Avenue, Hull HU6 7LU. Tel: (0482) 448508.

Completed applications must be received by no later than 18th May 1983.

HUMBERSIDE COLLEGE of Higher Education

Cambridge College of Arts and Technology
TEMPORARY LECTURER IN GERMAN (TWO POSTS)

Required from 1 September 1983. The post holder will be responsible for the following areas:

Application forms and further details may be obtained from: The Personnel Office, Cambridge College of Arts and Technology, Cambridge CB2 3RQ. Tel: 0223 333333.

Completed applications must be received by no later than 18th May 1983.

Research & Studentships

university college of swansea

Senior Research Assistant

Applications are invited for the vacancy of Senior Research Assistant in the Department of Computer Science, to work on a BEC project on the numerical simulation of time-dependent flows of non-Newtonian liquids. Applicants should preferably have a PhD in an area of numerical mathematics and an interest in numerical fluid dynamics.

The appointment will be for ten months. The commencing salary will be up to £7,225 per annum.

Further particulars and application forms (2 copies) may be obtained from the Personnel Office, University College of Swansea, Singleton Park, Swansea, SA2 8PP, to which office they should be returned by Tuesday, 31st May 1983.

University of Newcastle upon Tyne
The strong student body of the University of Newcastle upon Tyne is seeking a Senior Research Assistant to work on a project in the field of computer graphics. The post holder will be responsible for the following areas:

Application forms and further details may be obtained from: The Personnel Office, University of Newcastle upon Tyne, Newcastle upon Tyne NE1 7RU. Tel: 0191 275 1111.

Completed applications must be received by no later than 18th May 1983.

University of Bradford

SSRC LINKED STUDENTSHIP

Applications are invited for a full-time studentship in the Department of Applied Social Studies. The post holder will be responsible for the following areas:

Application forms and further details may be obtained from: The Personnel Office, University of Bradford, Bradford BD9 4JT. Tel: 0547 535111.

Completed applications must be received by no later than 18th May 1983.

Home Exchange

SHORT EXCHANGE PROGRAMME - We are looking for four-year exchange students for the 1983/84 academic year. The post holder will be responsible for the following areas:

Application forms and further details may be obtained from: The Personnel Office, University of Bradford, Bradford BD9 4JT. Tel: 0547 535111.

Completed applications must be received by no later than 18th May 1983.

Research and Studentships continued

RESEARCH VISITS FOR SOCIAL SCIENTISTS

Research visits to:

- Federal Republic of Germany
- France or
- Sweden

Social science staff of UK higher educational and independent research institutions are invited to apply for SSRC awards for visits during 1984/85 aimed at developing contacts with social scientists in the above countries or doing preliminary research there. Awards are normally for a period of a few weeks and only exceptionally for up to 3 months. The financial support provides for travel, subsistence and minor research expenses. A detailed programme and timetable for the proposed visit is required and a working knowledge of the host country's language is normally expected.

Further details and application forms from: The Secretary, International Activities Committee, SSRC, 1 Temple Avenue, London EC4Y 0HD. Please state which country you hope to visit, and Ref: RVIT. Applications must be returned by 15th July 1983.



CITY OF BIRMINGHAM EDUCATION DEPARTMENT

Well qualified and experienced teachers are required for:

AFRO-CARIBBEAN TEACHING UNIT

Teacher/Researcher
(Salary £8,600-£11,420) Scale 4

To teach and research into the linguistic needs of pupils of West Indian family background. Applicants must be familiar with the language spoken by the black community, qualified in Linguistics or English and knowledgeable about the educational needs of black pupils.

Further details and application forms are available from: The Head, Multicultural Support Services, Brodley Centre, Stratford Road, Birmingham B11 1AR. (Please enclose a.s.s.). Closing date Friday, 20th May 1983.

BIRMINGHAM CITY COUNCIL

The University of Aston in Birmingham

RESEARCH STUDENTSHIPS

Applications are invited from graduates with a 2:1 or above in a relevant subject for a full-time research studentship in the Department of History. The post holder will be responsible for the following areas:

Application forms and further details may be obtained from: The Personnel Office, University of Aston, Aston Triangle, Birmingham B4 7ET. Tel: 021 359 3111.

Completed applications must be received by no later than 18th May 1983.

University of Essex

SSRC LINKED STUDENTSHIP

Applications are invited for a full-time studentship in the Department of History. The post holder will be responsible for the following areas:

Application forms and further details may be obtained from: The Personnel Office, University of Essex, Wivenhoe Park, Wivenhoe, Essex SS2 7LQ. Tel: 0206 843111.

Completed applications must be received by no later than 18th May 1983.

University of Hull

RESEARCH WORKER

Applications are invited for a full-time research worker in the Department of Health Studies. The post holder will be responsible for the following areas:

Application forms and further details may be obtained from: The Personnel Office, University of Hull, Hull HU6 7RX. Tel: 0482 464111.

Completed applications must be received by no later than 18th May 1983.

The University of Manchester

ASSOCIATESHIP - SSRC CROWD AND COMMUNITY STUDY

Applications are invited for the post of Research Associate in the study of the Crowd and the Community. The post holder will be responsible for the following areas:

Application forms and further details may be obtained from: The Personnel Office, University of Manchester, Oxford Road, Manchester M13 9PL. Tel: 061 275 3111.

Completed applications must be received by no later than 18th May 1983.

(University of London)

Chelms College

SSRC Studentships

Applications are invited for the following posts:

PROFESSORS: £10,000-£12,000
ASSOCIATE PROFESSORS: £8,000-£10,000
ASSISTANT PROFESSORS: £6,000-£8,000
LECTURERS: £4,000-£6,000
ASSISTANT LECTURERS: £2,000-£4,000

Exchange rate from Libyan Dinars to Pound Sterling is approximately 1LD=£372.10

In addition to this, successful candidates will receive the following benefits:

a. Tourist class air ticket for staff member, his wife and up to four children from place of recruitment to Sabha via Tripoli.

b. Air tickets as above for leave after each year's service with the University.

c. Up to 25% of the cost of the fare towards excess baggage charges on two occasions only - at the beginning and at the end of the year.

d. Allowance of LD100 per month for a married man accompanied by his wife, or LD70 per month for one who is single or unaccompanied, for rent and accommodation. The facility has a number of Staff Flats and houses.

e. The University provides full, free medical services for staff members and family.

f. On termination of contract a gratuity of 2 months salary at final rate will be paid in respect of the final 2 years of service, plus 3 months salary at final rate in respect of third and further years of service.

Applicants in writing please, specifying the field in which position is sought, enclosing two copies of Curriculum Vitae and day time telephone number to:

Mr. K. Rhy-Jones, Education Division, Pigeon Enterprises Limited, London House, 288 Fulham Road, London SW10 2EL

Closing date: 16th May, 1983

UNIVERSITY OF NATAL

DEPARTMENT OF MECHANICAL ENGINEERING DURBAN, SOUTH AFRICA

Applications are invited from suitably qualified persons regardless of sex, religion, race, colour or national origin for appointment to the post of:

SENIOR LECTURER IN MECHANICAL ENGINEERING

Preference will be given to candidates who have a background in dynamic systems and control and demonstrated interest in conducting research. Opportunity exists for the development of activities in computer applications to design, manufacturing and other fields. Duties will include teaching, undergraduate courses and supervising graduate research. Industrial experience is desirable. Candidates with a Ph.D. in Engineering will be preferred.

Salary in the range: R16 567-R24 045 per annum.

The commencing salary notch will be dependent on the qualifications and/or experience of the successful applicant. In addition, a service bonus of 60% of one month's salary is payable annually.

Application forms, further particulars of the post and information on pension, medical aid, group insurance, staff bursary, housing loan and subsidy schemes, long leave conditions and travelling expenses on first appointment are obtainable from the Secretary, South African Universities Office, Chichester House, 278 High Holborn, London WC1V 7HE or the Registrar, University of Natal, King George V Avenue, Durban, 4001, with whom applications, on the prescribed form, must be lodged not later than 15th July 1983 quoting the reference D4463.

Completed applications must be received by no later than 18th May 1983.

Completed applications must be received by no later than 18th May 1983.

SOCIALIST PEOPLE'S LIBYAN ARAB JAMAHIRIYA AL FATEH UNIVERSITY

FACULTY OF EDUCATION SEBHA, LIBYA

The Faculty of Education at Sebha is the first operational faculty of this new University and is looking for well-qualified and experienced candidates with a drive and initiative who will be responsible for developing and conducting courses. Applicants for the following posts should have relevant experience and a strong academic background, i.e. at least an MSc or MA and preferably a PhD (exceptionally excellent lecturers may be appointed to English Department holding first degree plus qualification in TEFL). Vacancies have arisen in the following areas:

LECTURESHIPS/ ASSISTANT LECTURESHIPS

I. TUTION in the following departments is conducted in English except where otherwise stated:

(a) CHEMISTRY: general, analytical, inorganic, organic, and physical chemistry, spectroscopy, nuclear chemistry, industrial and bio-chemistry, polymer chemistry, petroleum and petrochemicals. Interest in instrumentation desirable.

(b) PHYSICS: theoretical physics, nuclear physics, solid state physics, computer science.

(c) MATHEMATICS: applied mathematics (quantum mechanics, mechanics and/or special functions), statistics (Arabic applicants required for some posts), analysis (complex analysis, real analysis, topology, numerical analysis).

(d) BOTANY: plant ecology, geography and flora, bacteriology, virology, phytochemistry, genetics, plant physiology, applied microbiology.

(e) ZOOLOGY: invertebrates, entomology, parasitology, animal physiology, general zoology.

II. ENGLISH DEPARTMENT
Linguistics/phonetics, English for special purposes (for students of science, philosophy and Arabic), modern literature, general T.E.F.L.

III. ARABIC DEPARTMENT
Arabic literature, Arabic grammar, Islamic studies.

IV. DEPARTMENT OF PHILOSOPHY AND SOCIAL SCIENCE
Statistics, history of philosophy, philosophy of science, mathematical logic, logic.

V. HISTORY DEPARTMENT
Ancient history, Islamic history, medieval history, geography.

VI. DEPARTMENT OF EDUCATION AND PSYCHOLOGY
Education studies, methodology of teaching, social fundamentals of education, child psychology, method of education, educational supervision.

Annual Basic Salary is as follows:

PROFESSORS: £10,000-£12,000
ASSOCIATE PROFESSORS: £8,000-£10,000
ASSISTANT PROFESSORS: £6,000-£8,000
LECTURERS: £4,000-£6,000
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Don's diary

Monday

Rather apprehensive. No financial support from the poly. Will my bank manager lend me the money? I'm desperate. Chris plus NAB threats have led to increased pressure at work. Lots of "creative" (administrative and other) writing to do with no hope of secretarial support.

Reflect got frustrated by limitations of electric typewriter over a year ago after seeing demonstration of a crude word-processing package being used on a micro computer.

Now, after heavy teaching day and several months after advertisement in *THE THES*, a hand-held word-processor (HHWP) is being demonstrated at my home. Will this little device mean that I can get a word-processor at last?

I ask a few questions of the salesman who is on his way back to London from Sheffield (there is no local dealer). Within an hour I am almost sure that this HHWP could transform my life. He left it with me: I had 30 days to pay.

Tuesday

Speculate that the HHWP might actually be more useful to me than the departmental Apple (assuming we could word-process on it) and it would be cheaper than the other non-portable word-processing systems I had looked at. But I would have to learn to write using only six keys! Only six keys to create all letters of the alphabet, all numbers, punctuation and the commands. Still in bed, drinking early morning tea, I learn the alphabet in ten minutes or so. First hurdle over. Go to work.

Get home about 6 p.m. Usually would be exhausted and flop for two hours before starting to prepare for the next day's teaching and meetings. But this night is different. First I write a memo to my head of department indicating what I think the HHWP will do and how it could help us with some ambitious projects which we are planning. Don't have a printer so I store my first attempt on tape in anticipation of locating a suitable printer. Write a lecture on the word-processor.

Take it to bed. Not down some ideas for documents which have to be prepared soon for our department's plans to develop a race relations unit.

Wednesday

Wake up early. Switch on the HHWP. "and scroll" through notes made last night. Have more ideas. Insert them at appropriate places. Collect cassette player from study and store my draft ideas on tape while sipping tea in bed. Decide to check that my store is working. I test the procedure for clearing the memory. The book says press MW. I do that. The machine's LCD screen says MULTIPLE WIFE? Yes, this is what should happen. So, I push two more keys and the screen says MEMORY CLEARED! Good. So far all is well. Now the big test: calling back material from the tapes. Try the memo to VJ, Head of Department first. Press R to read from tape (keeping fingers firmly crossed). Within seconds the display reads TAPE ERROR 000. Disconnect the word-processor from the cassette player and start to scroll. Yes, there it is. Find a phrase I want to alter. Do so. Think of some things to add. Then store my amended version. Notice the time. I want to get to work early to find a printer.

Find the departmental printer won't do - it has the wrong "interface".

Between classes make phone call to local dealer. Relief. He has a printer with an RS232 (serial) interface.

Slip out at lunch time. Test out the printer by linking it to the HHWP and transfer the things I've written so far on to paper. Get more excited. The staff in the shop have never seen a HHWP before. They crowd round intrigued.

Get back in time for afternoon course committee. Take notes of meeting on my HHWP and have fantasies

about being able to print out minutes straight after meetings. Meeting finishes by 5 pm so go back to the shop.

Talk prices. Get my meeting notes printed. I'm looking at daisy wheel electronic typewriters which can also be used as printers. I dream about being able to send off good quality top copies of articles, grant applications, reports on research projects. I think about the marathon efforts of our secretaries when coping with preparing draft after draft of CNA submissions.

After dinner work out my finances. Speculate again on the goodwill or otherwise of my bank manager. Word-process a lecture handout for tomorrow, using the television as a full screen display. Getting text into a reasonable format is so easy. Decide to abandon my electric typewriter.

Thursday

Wake up early. Start thinking about the lecture I will be giving on post-Warwick developments. Realize that many hand-drawn pupils, students and adults who would never manage a standard typewriter keyboard could use this one-handed machine.

Reflect on what Michael Posner said at the ALSISS meeting in January. He urged social scientists to use information technology in order to improve the quality of social science research. I wonder whether he included word-processing in his thoughts about information technology?

I try using the word-processor during seminars. Students are bad at taking notes if they are involved in discussions and we can no longer photocopy prepared seminar papers for all members of the group. I link it to a monitor so that I can take notes on what is said and the students can see it on the screen. If I had access to a printer I could run off enough copies for each of them to have a record. I then remember there is no A4 paper left anyway and feel frustrated by the way the cuts are affecting basic items.

Ring the bank manager. He agrees to lend me enough to cover the cost of the word-processor, a television interface and insurance and VAT.

Friday

See the bank manager. He agrees to lend me the money for a printer too. He's interested in word-processor as an alternative to dictating. His secretary could print out his material, make any amendments and, by linking up to a microcomputer, store his material on disc.

At lunch time order a printer. The shop agrees to lend me one for the weekend. Collect the printer on my way home.

Go to listen to some music for a change. Realize I could work while listening to music: the word-processor is quiet, unlike a typewriter. Realize that the kids have not complained about my early morning working this week: my typewriter used to disturb them, even if I kept the study door closed. Feel pleased with the developments.

Saturday

Do a grant application for the National Association of Widows. Estimate that using the word-processor cuts the preparation time by at least a half. I always go through several drafts and in the past it has been agony trying to type a perfect final copy. No problems today.

Sunday

No need to work today. Usually I have to. But the word-processor has given me some leisure time. I write this on a British machine.

Ann Stanyer

The author is principal lecturer in social policy at Coventry (Lanchester) Polytechnic.

Not long ago an eminent figure from the real world, far from the easy and protected life of higher education, congratulated me on my new job as the deputy education officer in the Inner London Education Authority. He did not quite say, but certainly implied, that such a move was overdue and that it was about time that I got out of the universities and started to do a real job. Since I have been looking forward to having a change and the challenge of doing something quite different, I concurred at the time. However, it has since led me to reflect a little on what constitutes a real job and real work. What for that matter is unreal about being a university teacher?

There is always a problem about generalizations and the way in which the academic role is defined and played in no exception. But the first stereotype of academics among those outside the business, which contributes to the "unreal" image of the work, is of people doing a part-time job for a full-time salary (although admitted to be not an especially high one).

Certainly such people do exist throughout higher education; but as a general rule the 10 to 15 hours a week people are exceptional, and they do not usually get very far in terms of promotion or any other kind of acclaim, though there are, of course, some well known senior common room figures, who worked hard in their younger days, but then opted for informal early retirement remaining seated in their chairs both literally and metaphorically. "Early retirement" while remaining at work is not confined to university teachers. However, it is certainly easier to get away with and to pass virtually unnoticed for this group than for many others.

The number of hours put in is not necessarily a measure of hard work

As someone who is regularly accused by her children of being workaholic, it is also worth noting that the number of hours put in is not necessarily a measure of how hard one has worked, as I have tried on numerous occasions to explain to them. Day-dreaming, mindless paper-shuffling, self-indulgent, undirected reading and various other kinds of idleness may well fill in the hours and be a substitute for real work.

However, quite apart from such activities, one person working 25 hours per week may be working harder than someone doing 45 hours a week because of differences in the sheer intensity of the work involved. Paradoxically although there is an unreality in many ways about academic work, some of it, notably writing and lecturing, does require greater intensity of effort than many other kinds of work. To that I will return a little later.

Union view

Old rivalry must become new friendship

The Scottish Joint Negotiating Committee for Teaching Staff in Further Education has reached its second annual conference and, in spite of the well-publicized difficulties produced by the operation of two different funding and management systems within the area covered by its remit. During the course of the negotiations the imminent break-up of the new committee was even suggested as a possibility if the management side failed to produce a common offer in line with the settlement agreed in the day school committee.

The problem is clear. The directly funded institutions and colleges of degrees of flexibility in financial matters as that enjoyed by the local authorities. This position is most unlikely to change and all parties on both sides of the committee must be concerned that exactly the same difficulty will arise again every year unless a solution is found.

It is inconceivable that the committee which took so long to come into being could be disbanded and it must, therefore, be made to work effectively. Since the Secretary of State for Scotland is represented on the committee

Real work in a very unreal job



Tessa Blackstone

Perhaps the most important reason why outsiders regard academic work as unreal is that it rarely involves taking difficult decisions which will have substantial effects on large numbers of other people. Compared with policy-making in central or local government, investment decisions in industry or even the decisions made by professional groups such as architects, doctors or lawyers, most of the decisions that have to be made in higher education are of a relatively trivial kind that seem unlikely to lead to loss of sleep.

The risks of losing other people's money whether that of the taxpayer, ratepayer, shareholder or client, are not ones that have to be taken; nor are there very large problems of priority to be decided in the allocation of resources. Moreover even the potentially big decisions like whether to back or pursue a particular piece of research or not, which might lead to substantial applications, will rarely be subjected to public scrutiny if the wrong decision was taken, for how do we ever find out if the decision was wrong?

Another sense in which I suspect others see work in higher education as unreal is that so much of it is undertaken without reference to other people. The individual academic has a great deal of autonomy. He or she can work largely as he or she pleases with relatively little reference to others and few constraints imposed on them by others. Thus trying to persuade bloody-minded employers or equally bloody-minded trade unions to change their practices and all the frustrations involved pass most academics by.

While academic politics may have and is therefore, partly to any agreements reached be must be persuaded to accept the resulting responsibility to provide the funding required to implement these agreements in the central institutions and colleges of education. If he does not, negotiation in these sectors becomes impossible and staff employed by the local authorities will be increasingly affected.

The structure of the SJNCFE, however, does not only pose problems for college managers. The five unions represented on the staff side, the Educational Institute of Scotland, the Scottish Further Education Association, the Association of Lecturers in Colleges of Education in Scotland, the Association of Scientific, Technical, Managerial Staffs, and the Association of Lecturers in Scottish Central Institutions also have to face up to uncomfortable realities.

It is an open secret that, in the absence of a majority for any single union a great deal more time is spent by staff representatives debating policy among themselves than in negotiation with management. While this has not proved a recipe for "misdeeds and disharmony", which a previous writer in this series predicted, it has indeed often been frustrating, and has indeed increasingly clear that this situation cannot continue indefinitely.

If current initiatives do not lead soon to the construction of a framework within which the unions can unite in a new all-embracing tertiary sector trade union body the inevitable alternative will be increasing polarization. It would be disastrous if permanent confrontation became the *modus operandi* of the staff panel.

Of course the setting up of such a body demands a considerable leap of imagination and faith on behalf of the members of the unions involved. The history of relationships both recent and long past is a formidable obstacle to overcome. Entrenched positions, difficult to abandon and old rivalries die hard. The greater part of the responsibility for allowing traditional suspicions must rest with the biggest union in the group. For such an attempt at unity to have the slightest chance of success EIS/FEIS must demonstrate beyond doubt a genuine willingness to participate on an equal footing with the others.

In view of the increasingly direct control of the centrally funded sectors by the Scottish Education Department, illustrated by financial crises in colleges of education and the attack on social studies courses in Paisley College of Technology it should be clear to the smaller unions that increasing pressure can best be resisted within a more powerful grouping.

The forum which the SJNCFE provides for the five unions to meet together on a regular basis in the tertiary sector of education in Scotland is a unique opportunity to see beyond the issues and interests which divide them. It will be tragic if we miss the chance.

been glamourized by C. P. Snow and other literary observers of the university world and made to sound like the battles of the Borgias, most of the fights and arguments that go on are pretty small beer, and I regret to say sometimes indulged in for the sake of an opportunity to display some semi-malicious wit against one's colleagues, and relieve the boredom, rather than out of genuine conviction.

Finally many of the activities academics spend time on do not require the exertion of a great deal of effort or a great deal of responsibility. Sitting on committees in higher education is hardly ever a demanding activity since most of them have far too many members and much of the discussion is about trivialities. For those who are brazen enough, they provide an opportunity for doing exactly what like Maynard Keynes or falling asleep like my old friend Harry Re. Listening to papers or lectures given by others may demand concentration to take them in but as a general rule really serious effort or responsibility is not entailed.

The lecturer is like an actor who has had to write his own lines

Having said all that let me return to lecturing and writing, both of which ought to be central tasks for academics, and neither of which are involved in anything like the same extent in many jobs in the no-called "real world". Preparing lectures and delivering them is without question hard work. The lecturer is like an actor giving a performance, who has had to write his own lines. The other side of the coin of the academic's autonomy is his or her isolation. Up on the podium you are alone with your notes. There is no one to shelter behind, no one to pass the buck to, no bureaucracy to be blamed or politician to be accused. It is your show and if you mess it up it is your fault. Similarly writing books or articles requires creativity and ideas, knowledge and information, logic and evidence, style and effective communication. It must be done largely alone, although co-authorship may help the process of doing it and reduce the impact of the criticism at the end of it. Academic writing, and to a lesser extent other types of writing, makes more demands on those who are undertaking it than most other kinds of work, excluding perhaps Prime Minister's Question Time in the House of Commons for the incumbent or heavy manual labour undertaken for many hours at a time.

Perhaps a crucial distinction must be made between what constitutes a real job and what constitutes a real work. It is perhaps conceivable that those of us who depart from academic life for other things, whether permanently or temporarily, are leaving an unreal job but some very real work.

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Kirkland Main

The author is chairman of the Association of Lecturers in Scottish Central Institutions.

LETTERS TO THE EDITOR

Introducing new technology methods to administrative matters

Sir, - I read with interest your leader of April 22 "A civil service for the polys" where you argued for improved status for polytechnic administrators, making adverse comparison with the universities. Questions of numbers of administrators, workload, and salary scales were introduced into the argument.

Also referred to were the good/bad old days when a handful of the principal college, supervised by the principal and two or three of his senior colleagues. Information technology was not mentioned at all in your leader, although it presents the opportunity to shrink administrators back to the level of the good/bad old days. University or polytechnic administration is tailor-made for the microprocessor. Indeed, the mini-computer presents an opportunity to dissolve central administrations. There is no reason why departments cannot now keep their own records, handle their own enrolments, timetable their own exams, notify their students of success/failure, etc leaving the central administration with payment of salaries and collection of fees.

One academic year is very much the same as another and the routines are simple. Thus the large amorphous polytechnic which was created out of a

shogun marriage of several colleges could convert to a federal structure, or the large university to a federation of colleges or institutes, each administering its own affairs. The central administration could be progressively reduced to a handful of office personnel, a works department for maintenance, and a few clerks to such central committees as still meet.

The real economic payoff of the application of information technology in the public sector will come from its potential for decimation of white-collar workers involved in low grade administration (the sector which has grown fastest in local government, the health service and the civil service in the last decade). Since there is so much talk about information technology by the Government and the University Grants Committee, surely the universities themselves should be in the van of exploitation of its potential, serving as an exemplar to the less forward thinking sectors of the economy? Should not the Secretary of State for Education and the UGC be pressing for significant reductions in administrative staffs in universities, polytechnics and education authorities, with a transfer of resources to areas of educational deprivation at the chalk face, and improvement in salary scales conditional on acceptance of the new technology?

Yours faithfully,
R. E. CUMMINGS,
11 Prince of Wales Drive,
London SW11.

Sir, - May I correct the impression given by your report on the annual general meeting of the Association of Polytechnic Administrators (*THES*, April 22) that the association is engaged in some kind of divisive numbers game.

For the large proportion of our readers who are unaware of the objectives of the association, these are to promote through education, training and other means the professional development of staff employed in the polytechnics. The association exists as an agency for professional staff development organized by and for polytechnic administrators. As well as a highly successful annual conference, a variety of regional and local activities are being developed.

The decision of the 1982 annual general meeting to extend membership to staff on grade AP2 and its equivalent was not, as your report implied, a cross

appropriate meeting, was that it was very unlikely that the subject was better taught anywhere in Scotland. Staff were enormously conscientious in keeping students up with recent developments in the subject, and they displayed a commendable familiarity with the work and progress of each student - something which I had not seen in any university which I had inhabited as student or teacher. The structure of the social science degree, together with staff shortages, made the Paisley courses rather theoretical in orientation; but the teachers sought to introduce students to a range of positions. If some weight was given to Marxist arguments then this did no more than reflect the general climate within sociology in those days.

Those days are over. But if it is the

From 1978 until 1981 I was external examiner for sociology courses at Paisley, and was asked to read so much material in that capacity that I gained a clear impression of what was being taught, and how it was being taught. My view, repeated each year at the

social sciences at Paisley

Sir, - It is difficult to know what to say to the news of the closure of the social science degree at Paisley College of Technology for alleged "left-wing bias" (*THES*, April 22). My first reaction is to thank God I left Scotland in 1981. My second reaction is fury: not just at the general principle that naked ideological bigotry should determine educational opportunities, but also at the incompetence of this particular decision.

Making the best of it

Sir, - From the reports that have appeared in *THE THES* describing the difficulties facing the Scottish Joint Negotiating Committee (SJNCF) in setting up the FE/HE "dispute", an uninformative reader might regard the governing bodies of central institutions and colleges of education as hard, uncaring employers. On the other hand, the management side of the FE sector might appear to be sympathetic employers willing to find the extra money to make an honourable settlement.

The truth is that when the SJNCF was set up 18 months ago, many predicted it would not work. There were originally three separate bodies which dealt with salaries in FE colleges, colleges of education and the central institutions. Over the years, they dealt very effectively with the particular problems of each sector. For reasons which are still not clear, they were all brought together in the SJNCF by an Act of Parliament at the recommendation of the Secretary of State. On the new committee the management side has 12 members representing further education, four members from colleges of education and four from central institutions. The staff representation is approximately the same. So the overwhelming majority of the membership consists of the management and staff from the local authority FE colleges.

The funding for salaries available to the FE management side negotiators comes from the local authorities and some extra cash can usually be found from the rates.

Indeed, the governing bodies of FE colleges do not actually handle salaries and wages paid to teaching and non-teaching staff. Teachers' pay cheques come directly from the authority. However, governing bodies of the centrally funded colleges (the minority group) on the SJNCF receive 100 per cent of the recurrent expenditure as a block grant, including the money for teachers' salaries which they pay directly to their employees. Included in this year's grant, was a figure of 3 1/2 per cent to cover the cost of salary increases for teachers in line with the Government's cash limit policy. The governing bodies of the centrally-funded colleges had wanted the Scot-

attempt by the association to increase its numbers. Rather it recognized a significant group of young administrative staff employed in the polytechnics to whose staff development needs the association hoped to be able to contribute. Similarly the inauguration of a category of "associate membership" was in response to an identified need from clerical and other staff for development opportunities which might help them towards achieving their aspirations for a career in polytechnic administration. This latest change has in no way altered the primary objectives of the association, but it is to be hoped that within the framework of these objectives as many staff as possible will be able to make use of the increasing opportunities which the association is providing.

Yours faithfully,
C. F. BURDON,
Academic registrar, City of Birmingham Polytechnic,
Honorary secretary, the Association of Polytechnic Administrators.

P. G. JEFFREYS,
Secretary and registrar, Hatfield Polytechnic,
Chairman, the Association of Polytechnic Administrators.

case that the memory lingers on after the song has ended then the Paisley case should haunt British academics. This wedge could thicken: sociology and politics in other places first; then history, classics, anthropology; any discipline in which scholars have been venal enough to see the ambiguous basis of Marx as an appropriate basis for speculation and investigation. That way lies not enlightenment, but book-burning. I shall watch the conflagration, without pleasure, from 12,000 miles away.

Yours faithfully,
IAN CARTER,
Professor and head of department,
Department of sociology,
University of Auckland,
New Zealand.

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appropriate meeting, was that it was very unlikely that the subject was better taught anywhere in Scotland. Staff were enormously conscientious in keeping students up with recent developments in the subject, and they displayed a commendable familiarity with the work and progress of each student - something which I had not seen in any university which I had inhabited as student or teacher. The structure of the social science degree, together with staff shortages, made the Paisley courses rather theoretical in orientation; but the teachers sought to introduce students to a range of positions. If some weight was given to Marxist arguments then this did no more than reflect the general climate within sociology in those days.

Those days are over. But if it is the

From 1978 until 1981 I was external examiner for sociology courses at Paisley, and was asked to read so much material in that capacity that I gained a clear impression of what was being taught, and how it was being taught. My view, repeated each year at the

social sciences at Paisley

Sir, - It is difficult to know what to say to the news of the closure of the social science degree at Paisley College of Technology for alleged "left-wing bias" (*THES*, April 22). My first reaction is to thank God I left Scotland in 1981. My second reaction is fury: not just at the general principle that naked ideological bigotry should determine educational opportunities, but also at the incompetence of this particular decision.

Making the best of it

Sir, - From the reports that have appeared in *THE THES* describing the difficulties facing the Scottish Joint Negotiating Committee (SJNCF) in setting up the FE/HE "dispute", an uninformative reader might regard the governing bodies of central institutions and colleges of education as hard, uncaring employers. On the other hand, the management side of the FE sector might appear to be sympathetic employers willing to find the extra money to make an honourable settlement.